VOL'SKIY, Viktor Votslavovich; GLINKIN, Anatoliy Nikolayevich; LAVRENT'YEVA, Ye.V., redaktor; MOGINA, N.I., tekhnicheskiy redaktor.

[Brazil] Braziliia. Moskva, Gos. izd-vo geogr. lit-ry. 1956. 87 p. (Brazil--Geography) (MLRA 9:5)

GLINKIN, I.

State [illegible] business [illegible]
60 [illegible]

1. [illegible]
oblast'.

GLINKIN, M. I.

USSR/Medicine - Literature
Sanitation

Aug 49

"Sanitation Service in the Days of the Patriotic War: Vol. IX, Gunshot Aneurisms," Medgiz, 1948, 4 p

"Khirurgiya" No 8

Volume contains 14 works of collaborators in two specialized hospitals of the Ural Mil Dist on clinical problems and treatment of traumatic aneurisms. Contributors are: L. M. Ratner, L. M. Protalinskaya, M. K. Glinkin, I. D. Korabel'nikov, and A. I. Bogatov.

PA 1/50T67

GLINKIN, N.A., kand.tekhn.nauk

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1. Moskovskiy aviatsionnyy institut.
(Drawing instruments)

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Spravochnik Mastera Metallobrabatyvayushchego Tsekha, published by Mosgiznestprom, Moscow, 1950

~~XXXX~~ Sum #1146

YEGOROV, M.Ye., zasluzhennyy deyatel' nauki i tekhniki, doktor tekhn. nauk, prof.; GLINKIN, N.M., dotsent, red.; KUNIN, P.A., red.; CHERNOVA, Z.I., tekhn.red.; SOKOLOVA, T.F., tekhn.red.

[Fundamentals of designing machinery plants] Osnovy proektirovaniia mashinostroitel'nykh zavodov. Izd.5., perer. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 480 p. (MIRA 12:11)

(Machinery industry)

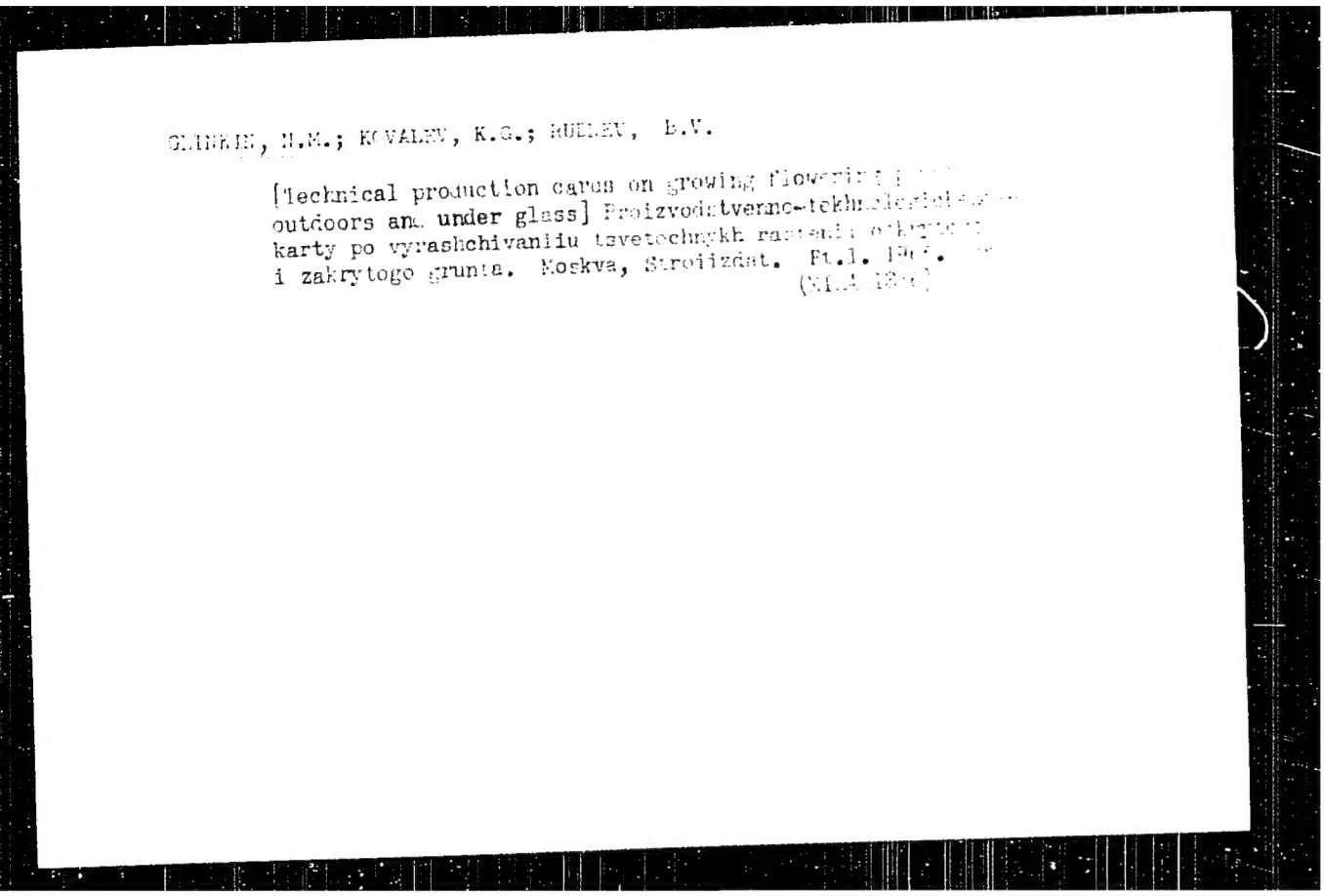
BOGUSLAVSKIY, Boris L'vovich; GLINKIN, N.M., nauchnyy red.; GORDEYEV, P.A., red.; KOZLOVSKAYA, M.D., tekhn. red.; PERSON, M.N., tekhn. red.

[Semiautomatic and automatic lathes and automatic lines] Tokarnye poluavtomaty, avtomaty i avtomatizirovannye linii. Izd.3., perer. i dop. Moskva, Vses.uchebno-pedagog. izd-vo Proftekhizdat, 1961. 599 p. (MIRA 15:4)
(Lathes) (Automation)

LITVAK, Lev Kisilevich; GLINKIN, N.M., nauchnyy red.; CHI YUN-SHUI [Ch'ih Yung-shui], red.; PEREDERIY, S.P., tekhn. red.

[Modern methods for drop forging]Sovremennye metody goriachei shtampovki. Moskva, Proftekhizdat, 1963. 193 p. (MIRA 16:4)

(Forging)



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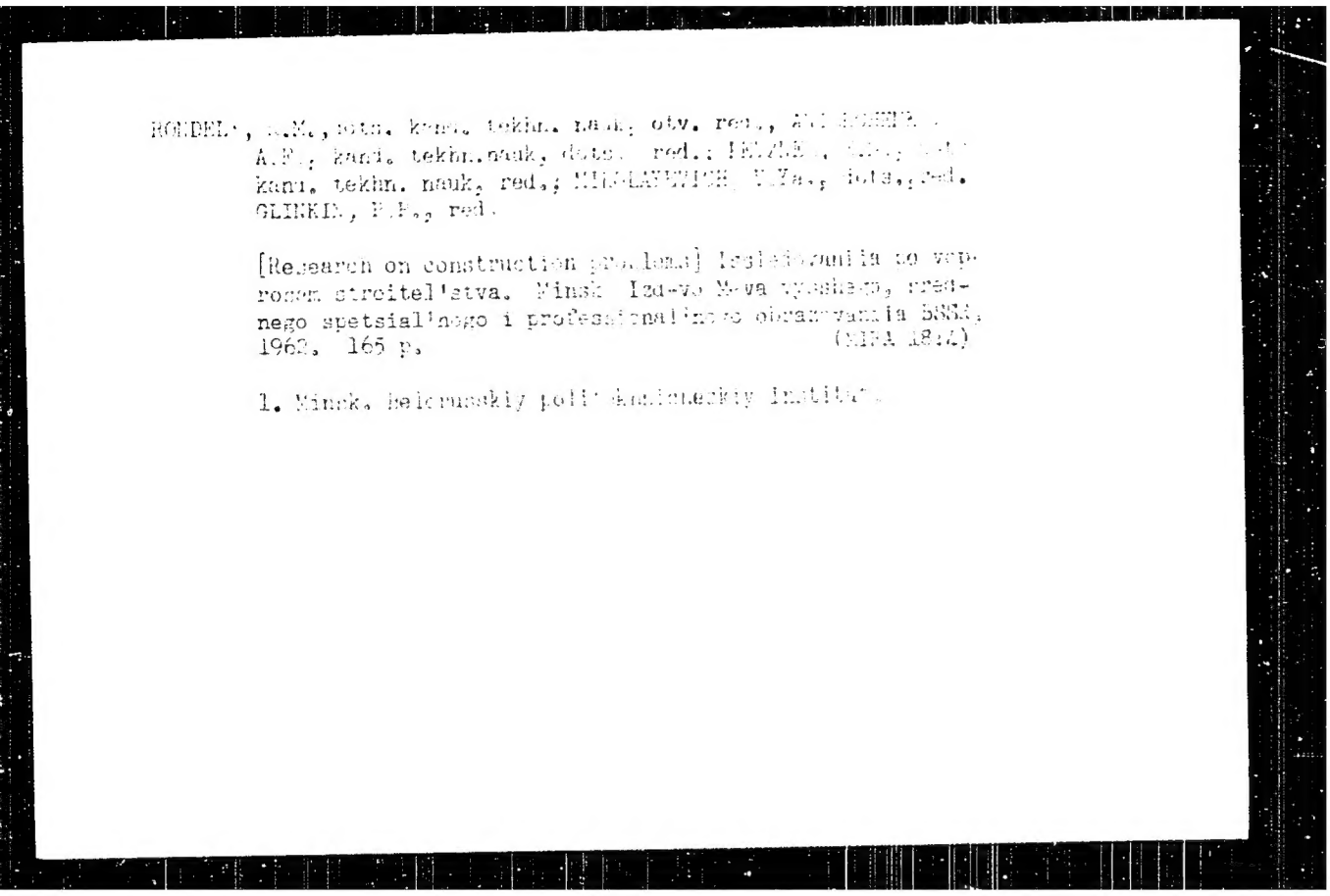
[Technical production cards on growing flowering [illegible] outdoors and under glass] Proizvodstvenno-tekhnicheskie karty po vyrashchivaniiu tsvetochnykh rastenii [illegible] i zakrytogo grunta. Moskva, Stroiizdat. Pt.1. 19[illegible]. (MLA 12:1)



ROGDEL', [illegible], kand. tekhn. nauk, otv. red., [illegible]
A.P., kand. tekhn. nauk, dots., red.; [illegible], kand. tekhn. nauk, red.; MIKOLAYEVICH, V.Ya., kand., red. GLINKIN, P.P., red.

[Research on construction problems] Issledovaniia po voprosam stroitel'stva. Minsk, Izd-vo M-va vysshego, srednego spetsial'nogo i professional'nogo obrazovaniia BSSR, 1962. 165 p. (MIRA 18:4)

1. Minsk. Belorusskiy politekhnicheskiy institut.

TSITOVICH, Igor' Sergeyevich; VAVULO, Vasiliy Andreyevich; KHVAL', Boris Nikolayevich; GLINKIN, P.P., red.; MORGUNOVA, G.M., tekhn. red.

[Gear wheels of motor vehicles and tractors; design] Zubchatye kolesa avtomobilei i traktorov; proektirovanie i raschet. Minsk, Izd-vo M-va vysshego, srednego spetsial'nogo i professional'nogo obrazovaniia RSSR, 1962. 394 p. (MIRA 16:4)

(Motor vehicles---Transmission devices) (Gearing)

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Vliianie formy kontsov kryla na [illegible] aerodinamicheskie kharakteristiki. Moskva, 1940. 20 p., tables, diagrs. ([illegible] Trudy, no. [illegible])

Bibliography: p. 19.

Title tr.: Effect of wing tip shape on aerodynamic characteristics of the wing.

S : Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000515410005-0"

SINYAKOVA, S. I.

Category: USSR/Analytical Chemistry - Analysis of inorganic substances. G-2

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 30997

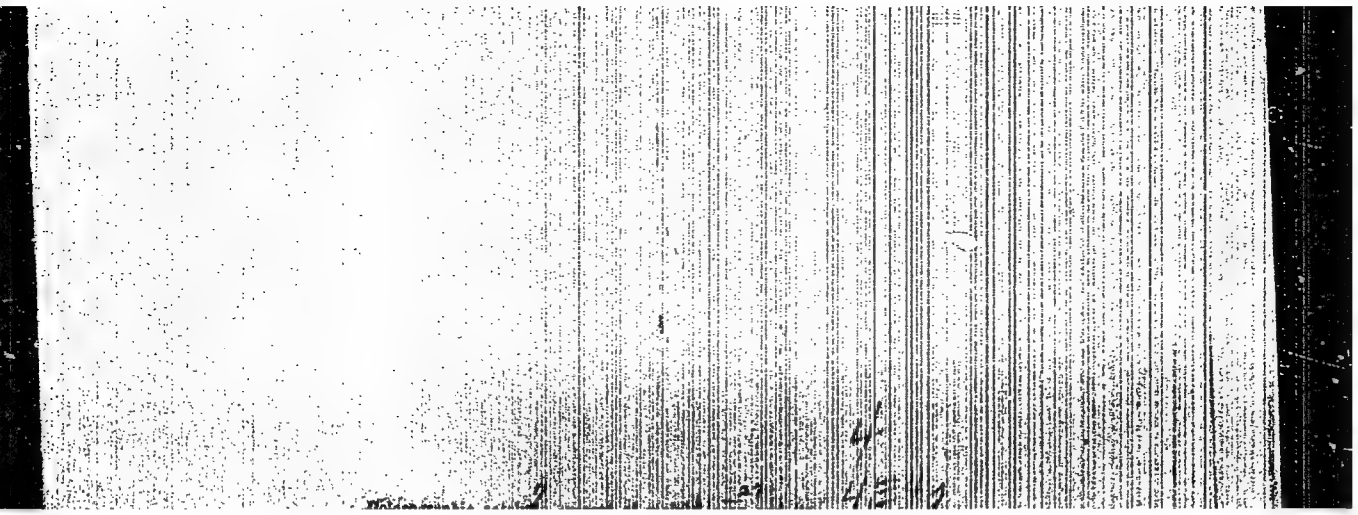
Author : Sinyakova S. I., Glinkina M. I.
Inst : not given
Title : Polarographic Catalytic Molybdenum Current and Its Utilization for Determination of Microgram-Amounts of Molybdenum.

Orig Pub: Zh. analit. khimii, 1956, 11, No 5, 544-552

Abstract: Study of the catalytic wave (CW) of Mo with a background of 1 M $HClO_4$ - 0.75 M H_2SO_4 and 1 M $NaClO_4$ - 0.75 M H_2SO_4. It was ascertained that in these media the Mo current does not depend on mercury-column pressure and H_2SO_4 concentration, but depends on concentration of $HClO_4$ (or $NaClO_4$) and is due to oxidation of Mo(4+), which is formed as a result of electrode reduction of Mo(5+) by the perchloric acid. The possibility is shown of determining the Mo on the basis of the CW, at concentrations up to $1 \cdot 10^{-6}$ M, with a relative error not exceeding $\pm$ 10%.

Card : 1/2

-32-



AUTHORS:

TITLE:

PERIODICAL:

ABSTRACT:

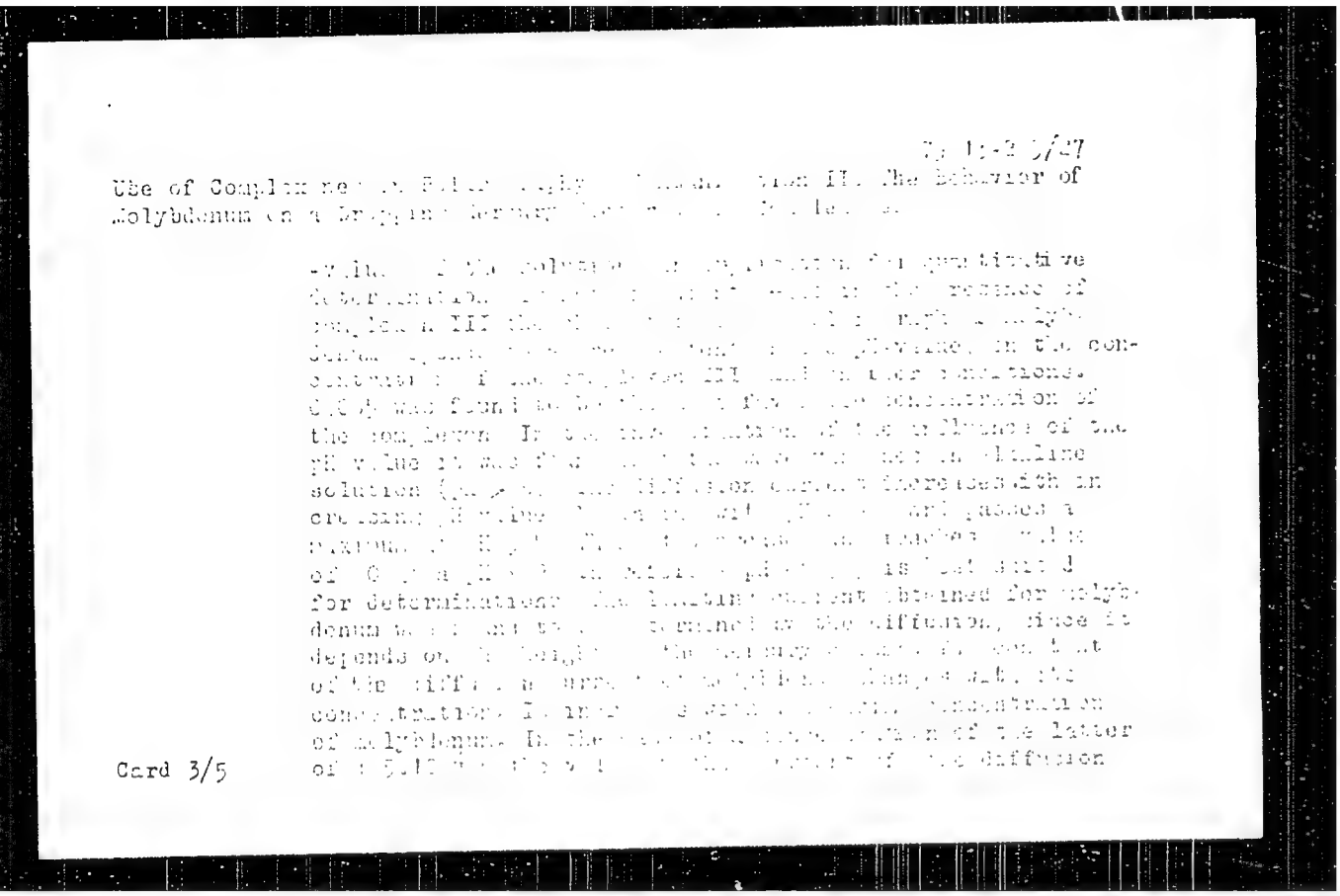
Card 1/5

[illegible]/37

Use of Complexones in Polarography. Communication II. [illegible] Molybdenum on a Dropping Mercury Electrode in Complexone [illegible]

occur in the solution [illegible] investigations [illegible] described in publications [illegible] of the molybdate ion on a dropping mercury electrode [illegible] the presence of complex forming substances [illegible]. In the present paper the results [illegible] of the behavior of [illegible] complexone [illegible] the complexone I (nitrilotriacetic acid) and complexone III (disodium salt of the ethylene diamine tetraacetic acid) as well as with several new complexones in dependence [illegible] factors (pH, concentration of the complexone, height of the mercury column, etc). Molybdenum yields in complexone I a well-marked reduction wave in acid solutions. The half wave potential depends on the pH value. In alkaline solutions (pH [illegible] 10) no wave occurs which [illegible] the instability of the complex in alkaline solutions. [illegible] condition for the formation [illegible] pH-value of from 4.5 [illegible] complicated course in presence of complexone I; in the case of certain pH values [illegible] since the amount of the diffusion current [illegible] in the presence of complexone I [illegible] the pH

Card 2/5



Use of Complexones in Polarography. Part II. The Behavior of Molybdenum on a Dropping Mercury Electrode.

Card 3/5

Use of Complexones in Polarogr[illegible]
Molybdenum on a Dropping Mer[illegible]

current corre[illegible] reduction of [illegible] influence of [illegible] of mol[illegible] that Fe^{3+} and [illegible] whereas the ions of [illegible] influence. The [illegible] di-sodium salt of [illegible] in the presence [illegible] cyclohexane diamine [illegible] Summarizing it was found [illegible] duced in acid [illegible] in alkaline [illegible] tubes of the diffusion [illegible] extent dependent on [illegible] III gives the [illegible] are 9 figures, 5 tables, [illegible] Soviet

Card 4/5

75 13 2 5/27

Use of Complexones in Polarography. Communication II. The Behavior of Molybdenum on a Dropping-Mercury Electrode in Complexones

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo AN SSSR, Moskva
(Moscow Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, AS USSR)

SUBMITTED: May 27, 1956

1. Molybdenum [illegible]
2. Mercury electrode [illegible]

Card 5/5

GLINKINA A. L.

~~LEVINA, S. D.~~

5(4) PHASE I BOOK EXPLOITATION SOV/[illegible]

Soveshchaniye po elektrokhimii. 4th, Moscow, 1956.

Trudy...; [sbornik] (Transactions of the Fourth Conference on Electrochemistry; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 868 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk.

Editorial Board: A.N. Frumkin (Resp. Ed.) Academician, O.A. Yesin, Professor; S.I. Zhdanov (Resp. Secretary), B.N. Kabanov, Professor, S.I. Zhdanov (Resp. Secretary), B.N. Kabanov, Professor, [illegible], Doctor of Chemical Sciences, V.V. [illegible], Ya. M. Kolotyrkin, Doctor of Chemical Sciences, V.V. Stender, Professor; [illegible] Lukovtsev, Professor; L.A. Solov'yeva; V.V. Stender, Professor; and G.M. Florianovich, Ed. of Publishing House: N.G. [illegible]; Tech. Ed.: T.A. Prusakova.

PURPOSE: This book is intended for chemical and electrical engineers, physicists, metallurgists and researchers interested in various aspects of electrochemistry.

COVERAGE: The book contains 127 of the 138 reports presented at the Fourth Conference on Electrochemistry sponsored by the Department of Chemical Sciences and the Institute of Physical Chemistry, Academy of Sciences, USSR. The collection pertains to different branches of electrochemical kinetics, double layer theories and galvanic processes in metal electrodeposition and industrial electrolysis. Abridged discussions are given at the end of each division. The majority of reports not included here have been published in periodical literature. No personalities are mentioned. References are given at the end of most of the articles.

Usachev, D.N., and A.T. Bagramyan (Institute of Physical Chemistry, Academy of Sciences, USSR). Mechanism of the Electrolytic Reduction of Chromic Acid [illegible]

Sinyakova, S.I., and M.I. Glinkina (Institut geokhimii i analiticheskoy khimii AN SSSR [illegible] Vernadskogo — Institute of Geochemistry and Analytical Chemistry imeni V.I. Vernadskiy, Academy of Sciences, USSR). Mechanism of the [illegible] of Catalytic (Kinetic) Waves in [illegible] Solutions Containing Molybdate Ions and Perchloric Acid [illegible]

Kalvoda, Robert. (Polarographic Institute, Czechoslovakian Academy of Sciences). Methods of Oscillographic Polarography [illegible]

Stromberg, A.G. (Tomskiy politekhnicheskiy institut — Tomsk Polytechnic Institute). Determination of the Composition of Discharging Zinc Complexes by the A[illegible] Polarographic Method [illegible]

Card 3/34

[illegible] J.N. (Great Britain). [illegible] of Oxygen to Hydrogen Peroxide at a Mercury [illegible] [illegible]

[illegible] (Institut [illegible] AN SSSR [illegible] — Institute of [illegible] Academy of Sciences, [illegible] Chain Reaction on the [illegible] Pyridine Salts [illegible]

[illegible] Compounds, Academy of Sciences [illegible] of α, β -Unsaturated [illegible] [illegible]

Discussion [illegible] Ch. Grabowski, A.I. [illegible], A.I. [illegible], A.T. Vagramyan, A.A. [illegible], S.P. [illegible], [illegible] Antropov, and A.N. Frumkin [illegible]

Card 1 / 34

S/081/61/000/019/018/085
B101/B147

AUTHORS: Studenikova, Z. V., Glinkina, M. I., Kornilova, K. I.

TITLE: Geochemistry of tungsten and molybdenum

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 19, 1961, 82, abstract 19G11 (Sb. "Geokhim. tsikly". M., Gosgeoltekhizdat, 1960, 178-186)

TEXT: The authors present extensive material of facts established by them as well as published data characterizing the Mo and W distribution in magmatic rocks. The Mo : W ratio varies between 0.2 and 0.5 in different types of rock. A study of the distribution of these elements in genetically connected series of intrusive rocks showed an accumulation of W in the later border differentiation products (alaskites), with monotonic Mo content and a low increase of its content in basic rocks. Mo separates from W at the stage of formation of quartz diorites (granodiorites). Analytical data of the monomineral fractions show that the principal mass of the two elements is bound to feldspars and quartz, with Mo primarily accumulating in plagioclase. The localization of Mo and W in leucocratic

Card 1/2

S/081/61/000/019/018/055
B101/B147

Geochemistry of tungsten...

minerals is explained by peculiarities of the electronic shells requiring a 6-coordination in the form of a trigonal prism (which can be observed on plagioclase). This leads to an isomorphous substitution of Ca^{2+}. In the autometamorphism of granites, the substitution of plagioclase by muscovite is due to de-anorthositation processes. Ca and W are set free and form small scheelite deposits, primarily in the anticlinal sections of granite massifs. W simultaneously accumulates at the pegmatite stage, and its content in quartz veins decreases. The Mo content in products of postmagmatic processes changes slightly, and increases inconsiderably in the quartz veins. [Abstracter's note: Complete translation.]

Card 2/2

STUDENIKOVA, Z. V.: GLINKINA, M. I.: KORNILOVA, K. I.

"Contribution to the geochemistry of tungsten and molybdenum"

Paper submitted at the International Geological Congress XXI Session - 1960 (Reports of Soviet Geologists) Problem No. 1, 15-2- Aug. 61

GLINKINA, V.N.; LAZARENKO, B.R., doktor tekhn.nauk, nauchnyy red.; KOVAL'SKAYA, I.F., tekhn.red.

[Electric spark machining of conducting materials; bibliography, 1955-1959] Elektroiskrovaia obrabotka tokoprovodiashchikh materialov; bibliograficheskii ukazatel', 1955-1959. Moskva, 1960. 68 p. (MIRA 13:11)

1. Akademiya nauk SSSR. TSentral'naya nauchno-issledovatel'skaya laboratoriya elektricheskoy obrabotki materialov. 2. Nauchno-tekhnicheskaya biblioteka TSentral'noy nauchno-issledovatel'skoy laboratorii elektricheskoy obrabotki materialov AN SSSR (for Glinkina).

(Bibliography--Electric metal cutting)

Veterinary Medicine

Work of the Moscow Veterinary Academy. Veterinariia 29 no. 6, 1952.

Monthly List of Russian Accessions, Library of Congress, August 1952. Unclassified.

AUTHOR: Leproskiy, V.V., Kapustin, A.A., Glinkov, G.M. and Slepkanev, P.N. 133-5-6/27

TITLE: On the comparison of tilting and fixed open hearth furnaces. (O sravnenii kachayushchikhsya i statsionarnykh martenovskikh pechey.)

PERIODICAL: "Stal'" (Steel), 1957, No. 5, pp. 411-413 (U.S.S.R.)

ABSTRACT: This paper is a comment on the paper by K.G. Trubin, "Stal'", 1956, No.9. The above subject is discussed in the light of the results of operating 250 ton tilting furnaces on the Azovstal' Works. For comparison with fixed furnaces the results obtained on the Zaporozhstal' Works are quoted. After indicating that the bottoms of tilting furnaces require more maintenance the authors compare the productivity of both types of furnaces. The dependence of the output per hour on the bottom surface (Fig. 1) and on furnace capacity (Fig.2) indicates that for furnaces of the same bottom area and the same capacity the productivity of fixed furnaces is better. Thermal efficiency of tilting and fixed furnaces is compared on the basis of heat losses and the extent of preheating of gas and air (Fig. 3). The stability of roof refractories in tilting furnaces is lower than in fixed ones; Azovstal' - 29 kg/ton of steel while on the Makeyevsk Works - 20 kg/ton. It is concluded that technical-economical indices of tilting

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On the comparison of tilting and fixed open hearth furnaces. (Cont.) 133-5-6/27

furnaces are somewhat lower than those of fixed ones. A comparatively flexible slag operation of tilting furnaces is acknowledged, however, the removal of the first slag starts in the period of the maximum activity of the bath, when the composition of slag has not reached an optimum. In this respect the operation is similar to one on fixed furnaces. There are 4 figures and 5 references, 4 of which are Slavic.

ASSOCIATION: Azovstal' Works and Zhdanovsk Metallurgical Institute. (Zavod Azovstal' i Zhdanovskiy Metallurgicheskiy Institut.)

AVAILABLE:

Card 2/2

SOV, 137-58-9-18607 D

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 63 (USSR)

AUTHOR: Glinkov, G.M.

TITLE: The Heat Absorption of an Open-hearth-furrace Bath as a Basic Parameter of the Control of its Thermal Performance (Teplopogloshcheniye vanny martenovskoy pechi kak osnova regulirovaniya teplovoy raboty)

ABSTRACT: Bibliographic entry on the author's dissertation for the degree of Candidate of Technical Sciences, presented to the Mosk. in-t stali (Moscow Institute of Steel Industry), Moscow, 1958

ASSOCIATION: Mosk. in-t stali (Moscow Institute of Steel Industry), Moscow

1. Furnaces--Performance 2. Material--Thermochemistry

Card 1/1

SOV/137-58-9-18569

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 56 (USSR)

AUTHORS: Kapustin, Ye. A., Makovskiy, V. A., Glinkov, G. M.

TITLE: The Role of Oxygen-enriched Flame in Oxidation Processes of Open-hearth Smelting (Rol' obogashchennogo kislorodom fakela v okislitel'nykh protsessakh martenovskoy plavki)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Chernaya metallurgiya, 1958, Nr 2, pp 84-92

ABSTRACT: An experimental campaign carried out in a 370 ton open hearth furnace of the "Azovstal'" plant has shown that increased consumption of O_2 in the flame increases the oxidation capacity of the furnace, the oxidation capacity being detined as the passage of O_2 into the molten metal per unit of time. It was noted that the boundary of the visible brightly luminuous flame is sharply reduced when O_2 is introduced. Thus, at an O_2 consumption of 2500 m^3/hr the length of the flame is reduced to one-half of the length of the hearth. Gas samples taken along the length of the hearth revealed that uncombusted components (CO, H_2) are found only within the boundaries of the visible flame. At high rates of fuel

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The Role of Oxygen-enriched Flame (cont.)

combustion and during frequent reversals (8-12 minutes), smaller quantities of combustible constituents are found in the central section of the furnace and it is for this reason that the gaseous phase attains its maximum oxidizing capacity in this area. The flame exhibits a maximum temperature near the first charge opening and a minimum temperature in the vicinity of the fifth opening (the temperature drop may be as great as 150-250°C). Analyses of the slag have indicated that the greatest content of Fe in the slag is found in the center of the furnace in the vicinity of the nozzles where conditions are favorable for the passing of Fe into the slag; this conclusion was fully substantiated by experiment. The thermal balance of the smelting process is very favorably affected when a portion of the oxygen of the ore or of the cinder is replaced by atmospheric oxygen. Thus, every ton of O_2 absorbed from the furnace atmosphere reduces the amount of heat required for preheating and fusion by approximately 5 million kcal.

1. Open hearth furnaces--Performance 2. Fuels--Combustion
3. Oxygen--Performance 4. Slags--Analysis

Yu N

Card 2/2

AUTHORS: [illegible], Kapustin, Ye.A., and [illegible]

TITLE: [illegible] Combustion [illegible] Working Space of a Tilting [illegible] [illegible] produktov goreniya [illegible]

PERIODICAL: Stal', 19[illegible], Nr 3, pp 2[illegible] - 224 (USSR)

ABSTRACT: [illegible] a contribution [illegible] subject [illegible] of fix[illegible] [illegible] the [illegible] (checker [illegible]) [illegible] (regional [illegible]) [illegible] Azovstal' Works. [illegible] figs.1-5. [illegible] that obtained [illegible] utility of a continuous [illegible] was established. [illegible]

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APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000515410005-0"

[illegible]

The Temperature of the Combustion Products [illegible]
Working Space of a Tilting Open-Hearth Furnace

ASSOCIATION: Zhdanovskiy Metallurgicheskiy Institut i Zavod "Azovstal'" (Zhdanov Metallurgical Institute and "Azovstal'" Works)

AVAILABLE: Library of Congress

Card 2/2

133-58-4-33/40

AUTHOR: Glinkov, [illegible]

TITLE: Control of Heating Conditions by Maintaining the Maximum Heat Absorption of an Open Hearth Bath (Regulirovaniye teplovogo rezhima podderzhaniyem maksimal'nogo teplopogloshcheniya martenovskoy vanny)

PERIODICAL: Stal', 1958, Nr 4, pp 370-378 (USSR)

ABSTRACT: The possibility of systematic and simple determination of the value of the specific absorption of heat by the bath and the coefficient of useful action of an open hearth furnace was investigated. In order to utilise the value of heat absorption by the bath in order to control the thermal operation of an open hearth furnace, it was necessary to devise a rapid method of determination of the mean heat absorption of the bath at frequent but short time intervals. A method of instantaneous reciprocal heat balance developed by VNIIMT (Ref.7) was tried. Specific heat consumption of the bath (cal/m² hr) is calculated from a general formula:

$$q = \frac{Q_x + Q_f + Q_{CO} - Q_x - Q_{los}}{72}$$

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133-58-4-33/40

Control of Heating Conditions by Maintaining the Maximum Heat Absorption of an Open Hearth Bath

where: Q_x - chemical heat of fuel;

Q_f - physical heat of fuel and air;

Q_{CO} - heat of combustion of CO from the bath;

Q_{yx} - heat leaving the working space with waste gas;

q_{los} - losses of idling;

72 - surface area of the bottom, m^2.

In order to find out the nature of changes of heat absorption in the course of the heat and its dependence on various factors 15 experimental heats were carried out on a 350 ton tilting furnace (Azovstal' Works) with a magnesite chromite roof operating with a high phosphorus pig (P 1.4-1.7%) with 72-77% of hot iron in the charge. In order to determine the heat absorption by the bath by the method of instantaneous heat balance, the following measurements were carried out:

a) temperature of preheat of air using a suction thermo-

Card 2/4 couple in the vertical flue on a level 1 m above the

Control of Heating Conditions by Maintaining the Maximum Heat Absorption of an Open hearth Bath

platform, every 15-20 min;
b) temperature of gas preheat with a suction thermocouple;
c) temperature of waste gas. The latter was measured every 15-20 min in the air vertical flue in the same place where the air temperature was measured. A thermocouple was introduced 40-50 cm deep for 30-40 sec. The indications of this thermocouple were tested with a suction thermocouple and found to be satisfactory. Using the above three temperatures and indication of instruments on the consumption of fuel and air, the specific heat absorption and the coefficient of useful action were calculated for each heat. The experimental heats were done under various thermal and oxygen conditions. The results are shown in Fig.1 and the Table (for two heats). A comparison of heat balances obtained from the heat absorption curve and calculated for the whole heat indicated that the accuracy of instantaneous heat balances is about 10%. The dependence of heat absorption: on thermal load - Fig.2; on the rate of charging of granular materials (Fig.3A) and on the thermal load

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133-58-4-33/40

Control of Heating Conditions by Maintaining the Maximum Heat Absorption of an Open Hearth Bath

during melting - Fig.3B, on the velocity of decarburisation - Fig.4. It was established that the air and waste gas temperature can be determined from measurements of the temperature of the internal surface of the wall of the vertical flue with a radiation pyrometer (Figs.5,6). It is pointed out that it would be advantageous to design a scheme for a complete automatic control for open hearth furnaces, using as the main controlling parameter the specific consumption of heat by the bath which completely defines the thermal operation of the furnace. The method described in the paper is suitable for instrumentation and thus can form a basis for developing an automatic control for open hearth furnaces. The work was carried out under the direction of I. G. Kazantsev, Professor, Doctor of Technical Science. There are 1 table, 7 figures and 8 references, 7 of which are Soviet, 1 English.

Card 4/4

1. Open hearth furnaces--Control systems

SOV/133-58-9-8/30

AUTHORS: Kharitonov, A.S., Candidate of Technical Sciences, Docent, Bul'skiy, M.T., Alimov, A.G., Glinkov, G.E. and Beloglovskiy, M.Sh., Engineers

TITLE: Optimum Temperature Conditions for Smelting Rimming Steel from Phosphorus Pig Iron (Optimal'nyy temperaturnyy rezhim vyplavki kipyashchey stali iz fosforistogo chuguna)

PERIODICAL: Stal', 1958, Nr 9, pp 706 - 709 (USSR)

ABSTRACT: An outline of the smelting practice of rimming steels used in the Azovstal' Works is given. On the basis of an analysis of the temperature data during the refining period of a large number of heats, the optimum metal temperature at the beginning of boiling and before deoxidation was established in order to obtain steel with a low consumption coefficient. The influence of the charging rate of additions during the refining period on the velocity of heating of metal - Figure 1; the influence of the metal temperature at the beginning of pure boiling on the number of ladles of metal of low and high consumption coefficients - Figure 2; the influence of metal temperature before deoxidation on the number of ladles of metal of high and low consumption coefficients - Figure 3;

Card1/2

Optimum Temperature Conditions [illegible] Steel from Phosphorus Pig Iron

the influence of the [Mn] : [C] ratio in the finished rimming steels on the [illegible] coefficient of metal - Figures 4 and 5 (A); [illegible] distribution of the number of ladles of steel with different [Mn] : [C] ratios - Figure 5 (B). It was also established that it is advantageous to produce rimming steel with the manganese content in the ladle sample close to the lower limit permitted by standards and that the ratio of [Mn] [C] in the finished steel should not exceed 2.7 for steels St0, 1 and 2kp and 2.5 for steel St3kp. There are 5 figures and 3 Soviet references.

ASSOCIATIONS: Zhdanovskiy metallurgicheskiy institut (Zhdanov Metallurgical Institute) and Zavod "Azovstal'" ("Azovstal'" Works)

Card 2/2 - Steel--Production 2. Steel--Temperature Factors

GLINKOV, G.M. kand.tekhn.nauk

Heat exchanges in open hearth furnace smelting chambers. Izv. vys.uchab.zav.; chern.met. no.10:69-74 O '58. (MIRA 11:12)

1. Zhdanovskiy metallurgicheskiy institut.
(Open-hearth furnaces) (Heat--Transmission)

GLINKOV, G.M., kand. tekhn. nauk.

Feasibility of using computing devices for the automatization of open-hearth furnaces. Izv. vys. ucheb. zav.; chern. met. no.12: 51-55 D '58. (MIRA 12:3)
(Open-hearth furnaces) (Automatic control)

SOV: 137-58-11-22082

Translation from: Referativnyy zhurnal Metallurgiya 1958, Nr 11 p 36 (USSR)

AUTHOR: Glinkov, G M.

TITLE: Heat Absorption in the Bath of an Open hearth Furnace During a Heat as the Basis for Regulation of Thermal Conditions (Teplopogloshcheniye vanny martenovskoy pechi po khodu plavki kak osnova dlya regulirovaniya teplovoy raboty)

PERIODICAL: Sb. Mosk. in t stali 1958, Vol 38 pp 112-134

ABSTRACT: Change in heat absorption (H) of the bath was determined for the courses of 15 experimental heats in 350 t tilting open hearth furnaces at the Azovstal' plant equipped with chemically bonded magnesite chrome roofs two level checker ports heated by a mixture of coke and blast-furnace gases, and burning in an oxygen enriched blow The method of measurement is described Comparisons showed that the difference between the quantity of heat received by the bath and calculated on the total heat balance and the same quantity of heat calculated by the method of inverse heat balance for one heat was 2 and for another 10 5 million kcal, constituting altogether 2 8 and 13,5% of the total heat output The amount of H varies highly in the

Card 1/3

Heat Absorption in the Bath of an Open Hearth Furnace During a Heat (con.)

course of a heat. Ranging from an average of 150-180,000 kcal/m^3 hr during the charging period (180-220,000 during charging of iron scrap and blooms), 60-80,000 at the end of the meltdown period, 100-140,000 at the start of the melting period, 60-80,000 at the end of the melting period and fluctuating in the range of 40-70,000 during the finishing period. During charging, melting down and melting, H rises with increase in O_2 consumption. The average for two groups of heats showed that when O_2 delivery was increased from 1500 to 2500 m^3/hr H rose from 153 to 186,000 kcal/m^3 hr during the charging period, from 118 to 149,000 kcal/m^3 hr during the meltdown period. H rises with increases in thermal load, the rise being the greater during the charging period the greater is the O_2 input. At identical thermal conditions, H during the period of charging of free flowing materials rises with the rate of charging. No such relationship was observed during the period of charging the metallic portion of the charge. The change in the efficiency of the furnace during the heat (an analogous change in H) is as follows: Charging 33.1-37.0%, meltdown 28.0-31.4%, melting 18.4-20.0% and finishing 12.8%. Since the change in the H and the efficiency of the furnace during the heat provide a complete description of the thermal functioning of the furnace, the utilization of the H of the bath or the efficiency of the furnace as input control impulses permits the development of new designs for automatic regulation of the thermal regimes of furnaces fueling

Card 2/3

SOV [illegible]

Heat Absorption in the Bath of an Open hearth Furnace Dur.ng a Heat (com[illegible]

computers), thereby permitting a pronounced [illegible]onstrication [illegible] the hermal [illegible]nc' cring of the furnace.

[illegible]

Card 3/3

SOV/148-59-1-9/19

18(5)

AUTHORS: Kapustin, Ye.A., Glinkov, G.M., Candidates of Technical Sciences and Kaluzhskiy, Ye.A., Engineer

TITLE: Raising the Productivity and Economy of Open Hearth Furnace by Improving the Thermal Process (Povysheniye proizvoditel'nosti i ekonomichnosti martenovskoy pechi za schët usovershenstvovaniya teplovogo rezhima)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Chernaya metallurgiya, 1959, Nr 1, pp 83-89 (USSR)

ABSTRACT: Experiments were carried out for the purpose of developing an improved heat process in open hearth furnaces, whereby optimum correlation of blast air and mazut consumption during the smelt were determined. The following personalities participated in the work: A.A. Goshchanskiy, V.I. Doroknov, V.P. Yevtyukhov, D.P. Zabrodkin, V.F. Kalinkin, A.Ye. Prikhozhenko, V.D. Rudman, A.A. Rykhlikova, N.G. Stepin, I.S. Chernyshev. It was stated that the determination of the blast expense depended on the components of air balance such as: air expense for fuel burning, oxidation of the pool, burning-out of CO, as well as loss of air caused by leakages and air intake from the external space.

Card 1/2

SOV/148-59-1-9/19

'Raising the Productivity and Economy of Open Hear h Furnace by Improving the Thermal Process

Air intake and loss depended on the pressure in the smelting space. For the case that optimum pressure under the smelting space coupola could not be maintained, the blast expense must be adjusted accordingly. The developed thermal process regulates the thermal load depending on the charge material (loose or scrap); the quality of the scrap; duration of initial heating and idle time; and the smelting intensity. The new method reduced the smelting time by 6.4% and the specific fuel expense by 8.3%. The author presents graphs where the mazut expense is plotted versus the smelting time; the quantity of beads and the Fe-content in the slag; etc.
There are 8 graphs and 6 Soviet references.

ASSOCIATION: Zhdanovskiy metallurgicheskiy institut (Zhdanov Metallurgical Institute)

SUBMITTED: October 1, 1958

Card 2/2

SOV/133-59-6-37/41

AUTHORS: Glinkov, M.A., Doctor of Technical Sciences and Glinkov, G.M., Candidate of Technical Sciences

TITLE: Some Thermotechnical Problems of Large Capacity Open Hearth Furnaces (Nekotoryye voprosy teplotekhniki bol'shegruznykh martenovskikh pechey)

PERIODICAL: Stal', 1959, Nr 6, pp 568-572 (USSR)

ABSTRACT: Possibilities of increasing the productivity of open hearth furnaces per unit of their capacity is discussed. It is considered that the higher the furnace capacity, the higher the quality of the solid charge should be. This would permit retaining the level of irradiation factor on decreasing of the ratio of the surface area of the bath to the furnace capacity (S/T). The higher the furnace capacity the higher the quality of the liquid iron or semiproduct should be as an increase in the thickness of the slag layer unavoidably deteriorates conditions of heat transfer. Sufficiently advantageous heat exchange conditions inside the solid charge and liquid bath can be obtained on retaining S/T constant with increasing

Card 1/4

Some Thermotechnical Problems of Large Capacity Open Hearth Furnaces

furnace capacity. In order to obtain this a different type of steelmaking furnace is necessary - with a working space up to 10 - 12 m wide, hanging roof and two-sided charging (with a corresponding change in the distribution of equipment in the shop). The higher is the laying down property of the flame and its luminosity at the end of the smelting space the lower is non-uniformity in the heat exchange along the length of the furnace. Therefore on increasing the capacity of the furnaces, it is necessary to increase correspondingly the velocity of the fuel stream in order to obtain the required laying down capacity of the flame. In order to improve the flame luminosity at the end of the smelting space, it is necessary to use as a fuel or a carburising agent, heavy liquid fuels with a large ratio of C/H, on the decomposition of which complex hydrocarbon complexes are formed, securing stable luminosity of the flame.

Some Thermotechnical Problems of Large Capacity Open Hearth Furnaces

A truly uniform heating of the baths of large furnaces can be obtained with a two-sided supply of fuel into the working space i.e. with simultaneous operation of two dog houses. On transferring an open hearth furnace on firing with oil or a cold gas of a high calorific value this problem can be solved easily by using three-channel dog houses (Fig 5). In each dog house either two side-channels or one central channel operates alternatively. The remaining three channels serve as waste gas flues to pass the waste gas to the regenerators - simultaneously through both dog houses. The movement of the gas in the working space will be mixed (counter-current and recirculation). As each dog house supplies through tuyeres the same amount of fuel, the heating conditions of both halves of the working space should be the same. All four regenerators are preheating air, the reversing system will be little changed. The separation of slag in slag pockets will be facilitated as due to the peculiar

Some Thermotechnical Problems of Large Capacity Open Hearth Furnaces

feature of the gas movement in the working space the carry over of the slag decreases. There are 5 figures and 9 Soviet references.

Card 4/4

KRIVANDIN, Vladimir Alekseyevich; GLINKOV, G.M., red.; VAGIN, A.A., red.izd-va; EVENSON, I.M., tekhn.red.

[Ceramic recuperators] Keramicheskie rekuperatory. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 171 p. (MIRA 13:2)
(Heat exchangers)

LEPORSKIY, Vladimir Vladimirovich; KAPUSKIN, Yevgeniy Aleksandrovich; GLINKOV, German Markovich; MAKOVSKIY, Vitaliy Anatol'yevich; LEBEDEV, A.I., red.; LANOVSKAYA, M.R., red. izd-va; DOBUZHIN-SKAYA, L.V., tekhn.red.

[Tilting open-hearth furnaces; design and heat transfer] Kachaiushchaiasia martenovskaia pech'; konstruktsiia i teplovaia rabota. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 181 p. (MIRA 14:5)
(Open-hearth furnaces--Design and construction)
(Heat--Transmission)

GLINKOV, G.M.; PAIOSHIN, N.A.; KAPUSTIN, Ye.A.; KARPOV, G.D.; ROGMAN, V.D.; KHIISH, I.I.

Results of modeling open-hearth furnaces fired by cold high-calorie gas and hot mixed gas. Izv. vys. ucheb. zav.; chern. met. no.2: 138-147 '61. (MIRA 14:11)

1. Zhdanovskiy metallurgicheskiy institut.
(Open-hearth furnaces--Models)
(Gas flow--Models)

GLINKOV, M.A., doktor tekhn.nauk,prof.; GLINKOV, G.M., kand.tekhn.nauk

Response to A. D. Kliuchnikov's remarks. Stal' 21 no.6:566 Je '61.
(MIRA 14:5)
(Open-hearth furnaces--Design and construction)

GLINKOV, M.A.; GLINKOV, G.M.

Role of heat generation in open-hearth furnace baths.
Stal' 21 no.8:751-753 Ag '61. (MIRA 14:9)
(Open-hearth furnaces)

LEPORSKIY, V.V.; SLEPKANEV, P.N.; ARKHANGEL'SKIY, Yu.N.; POPOL'SKAYA, G.A.; GLINKOV, G.M.; KAPUSTIN, Ye.A.; KALOSHIN, N.A.; KRIVENKO, P.T.

Operation of large tilting open-hearth furnaces with natural gas. Stal' 21 no.10:883-889 O '61. (MIRA 14:10)

1. Zavod "Azovstal'" i Zhdanovskiy metallurgicheskiy institut.
(Open-hearth furnaces)

KAPUSTIN, Yevgeniy Aleksandrovich; GLINKOV, German Markovich; MITKALINNYY, V.I., dots., retsenzent; GOLYATKINA, A.G., red.izd-va; KAPASEV, A.I., tekhn.red.

[Flow of gases in open-hearth furnaces] Dvizhenie gazov v martenovskikh pechakh. Moskva, Metallurgizdat, 1963. 270 p. (MIRA 16:4)

(Open-hearth furnaces) (Gas flow)

83-

PHASE I BOOK EXPLOITATION SOV/5556

Moscow. Institut stali.

Novoye v teorii i praktike proizvodstva martenovskoy stali (New [Developments] in the Theory and Practice of Open-Hearth Steelmaking) Moscow, Metallurgizdat, 1961. 439 p. (Series: Trudy Mezhvuzovskogo nauchnogo soveshchaniya) 2,150 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR. Moskovskiy institut stali imeni I. V. Stalina.

Eds.: M. A. Glinkov, Professor, Doctor of Technical Sciences, V. V. Kondakov, Professor, Doctor of Technical Sciences, V. A. Kudrin, Docent, Candidate of Technical Sciences, G. N. Oyks, Professor, Doctor of Technical Sciences, and V. I. Yavoyskiy, Professor, Doctor of Technical Sciences; Ed.: Ye. A. Borko; Ed. of Publishing House: N. D. Gromov; Tech. Ed.: A. I. Karasev.

PURPOSE: This collection of articles is intended for members of scientific institutions, faculty members of schools of higher education, engineers concerned with metallurgical processes and physical chemistry, and students specializing in these fields.

Card 1/14

New [Developments] in the Theory (Cont.) SOV/5556

COVERAGE: The collection contains papers reviewing the development of open-hearth steelmaking theory and practice. The papers, written by staff members of schools of higher education, scientific research institutes, and main laboratories of metallurgical plants, were presented and discussed at the Scientific Conference of Schools of Higher Education. The following topics are considered: the kinetics and mechanism of carbon oxidation; the process of slag formation in open-hearth furnaces using in the charge either ore-lime briquets or composite flux (the product of calcining the mixture of lime with bauxite); the behavior of hydrogen in the open-hearth bath; metal desulfurization processes; the control of the open-hearth thermal melting regime and its automation; heat-engineering problems in large-capacity furnaces; aerodynamic properties of fuel gases and their flow in the furnace combustion chamber; and the improvement of high-alloy steel quality through the utilization of vacuum and natural gases. The following persons took part in the discussion of the papers at the Conference: S.I. Filippov, V.A. Kudrin, M.A. Glinkov, B.P. Nam, V.I. Yavoyskiy, G.N. Oyks and Ye. V. Chelishchev (Moscow Steel Institute); Ye. A. Kazachkov and A. S. Kharitonov (Zhdanov Metallurgical Institute); N.S. Mikhaylets (Institute of Chemical Metallurgy of the Siberian Branch of the Academy of Sciences USSR); A.I. Stroganov and D. Ya. Povolotskiy (Chelyabinsk Polytechnic Institute); P.V. Umrikhin (Ural Polytechnic Institute); I.I. Fomin (the Moscow "Serp i molot" Metallurgical Plant); V.A. Fuklev (Central Asian Polytechnic Institute)

Card 2/14

and M.I. Beylinov (Night School of the Dneprodzerzhinsk Metallurgical Institute). References follow some of the articles. There are 268 references, mostly Soviet.

TABLE OF CONTENTS:

GLINKOV, G.M.

L 17595-65 EWT(d)/EWT(m)/EWP(c)/EWA(d)/EWP(v)/T-2/EWP(t)/EWP(k)/EWP(b)/EWP(l)
ACCESSION NR AM4046730 BOOK EXPLOITATION Pf-4 MJW/JD/ S/
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Samarin, A. M., ed. (Corresponding member, Academy of Sciences, U.S.S.R.) B+1

Steel production; handbook (Staleplavil'noye proizvodstvo; spravochnik), t. 2., Moscow, Izd-vo "Metallurgiya", 1964, 1039 p. illus., biblio., tables. Errata slip inserted. 5,850 copies printed.

TOPIC TAGS: steel, open-hearth furnace, quality control, refractory

TABLE OF CONTENTS [abridged]:

Part 8. Thermal engineering
Ch. XV. Fuel and its combustion in an open-hearth furnace (N. I. Ivanov) -- 535
Ch. XVI. Mechanics of furnace gases in open-hearth furnaces (G. M. Glinkov) -- 554
Ch. XVII. Heat transfer in an open-hearth furnace (S.S. Mamikonov) -- 575
Ch. XVIII. Thermal operation of an open-hearth furnace (Ye. A. Kapustin) -- 603
Ch. XIX. Auxiliary thermal equipment in steel production (B. G. Turovskiy) -- 617

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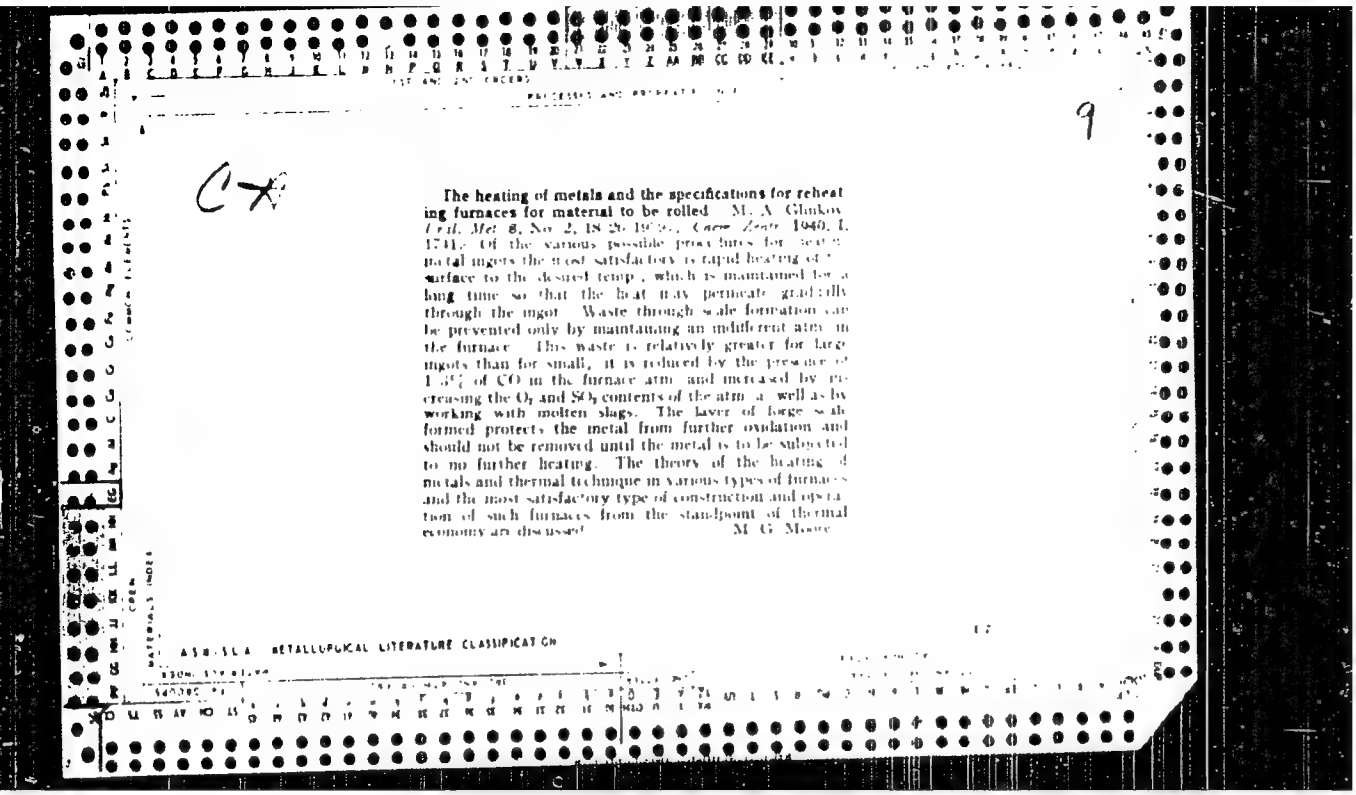

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The heating of metals and the specifications for reheating furnaces for material to be rolled. M. A. Glinkov. *Trud. Met.* 8, No. 2, 18-29 (1939). *Chem. Zentr.* 1940, I, 1741. Of the various possible procedures for heating metal ingots the most satisfactory is rapid heating of the surface to the desired temp., which is maintained for a long time so that the heat may permeate gradually through the ingot. Waste through scale formation can be prevented only by maintaining an indifferent atm. in the furnace. This waste is relatively greater for large ingots than for small, it is reduced by the presence of 1.5% of CO in the furnace atm. and increased by increasing the O_2 and SO_2 contents of the atm. as well as by working with molten slags. The layer of forge scale formed protects the metal from further oxidation and should not be removed until the metal is to be subjected to no further heating. The theory of the heating of metals and thermal technique in various types of furnaces and the most satisfactory type of construction and operation of such furnaces from the standpoint of thermal economy are discussed. M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Some Remarks About the Theory and Design of Open-Hearth Furnaces. M. Glinkov. (Stal, 1940, No. 3, pp. 16-20) (In Russian). The first section is devoted to a consideration of the heat transfer and heat balance in the working space of an open-hearth furnace. Some expressions for heat transfer are derived and the effect of the presence of either the solid or molten charge on heat transfer is considered. Temperature conditions and heat distribution in the working space are considered in the next section. Limits are imposed by refractoriness of the lining, but the temperature of the flame should be as high as possible. To obtain a constant surface temperature of the lining, the temperature of the gases should be higher the lower the temperature of the metal and the lower the ratio of the surface area of the lining to the surface area of the charge. For melting, the higher the temperature of the flame for a constant temperature of the lining the better. The intensity of heat exchange in the working space will be the greater the smaller the temperature gradient along the length of the flame, i.e., the higher (within limits) the temperature of the exit gases. It is stated that with insulated furnace roofs there is no need to have a lower flame temperature, but pyrometric equipment should be installed to check roof temperatures. In the concluding section the geometry of the working space is discussed.

A.S.M. METALLURGICAL LITERATURE CLASSIFICATION

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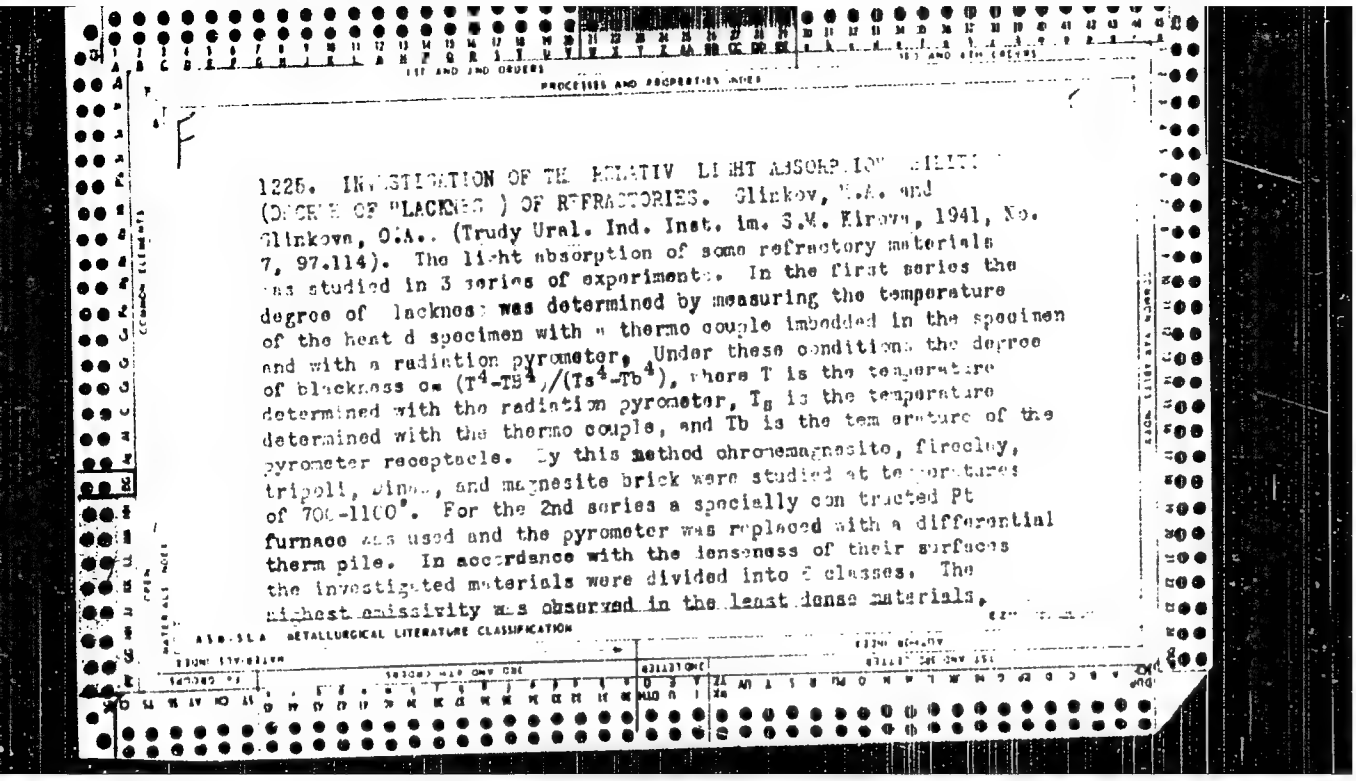
The hydrodynamics and heat exchange in the steel bath of the open hearth. M. A. Glinkov. *Ural Met.* 9, No. 9, 15-19(1940). *Chem. Zentr.* 1941, II, 801.—Theoretical discussion of the thermodynamics and heat-exchange processes in the steel bath of the open hearth and the significance of the theoretical knowledge of such processes with respect to the construction and technological aspects of steel manuf. It was established that no rules can be set down regarding the influence of such processes on the course of melting. H. Stoertz

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

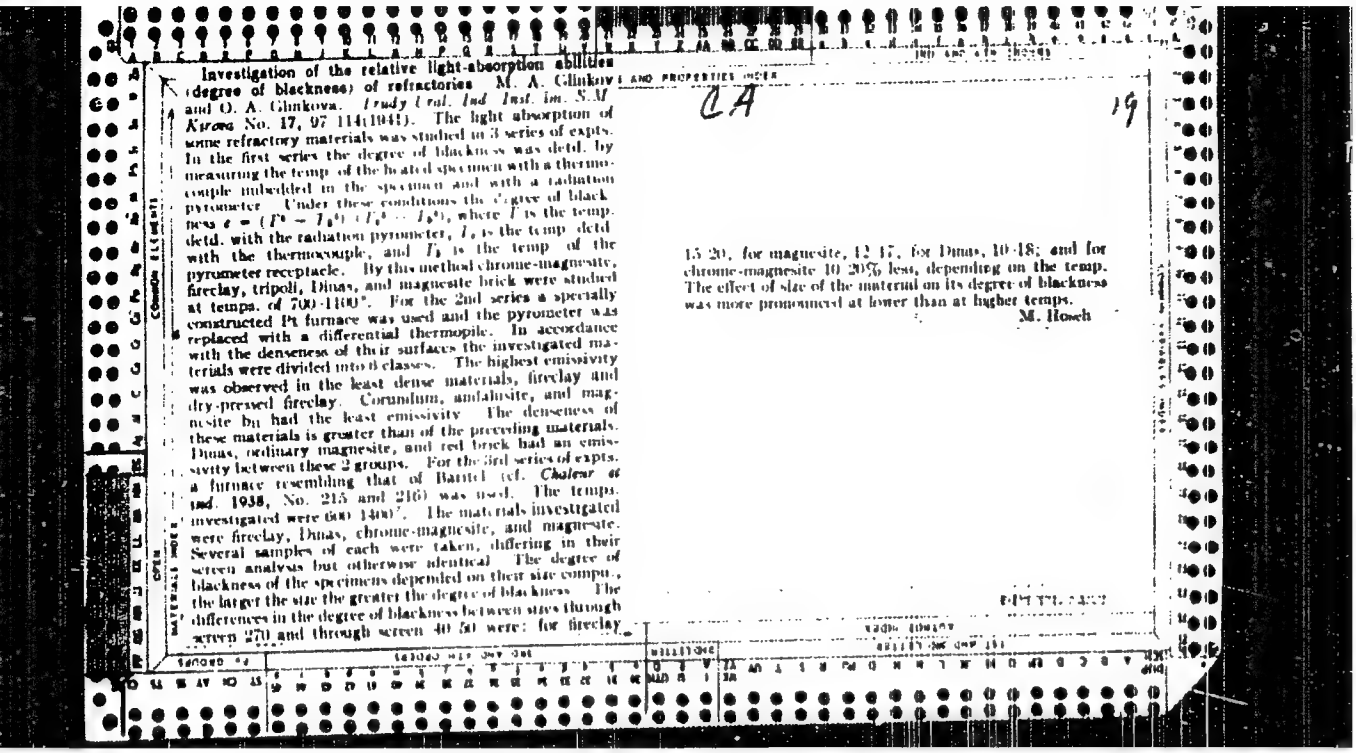


1225. INVESTIGATION OF THE RELATIV LIGHT ABSORPTION ABILITY (DEGREE OF BLACKNESS) OF REFRACTORIES. Glinkov, M.A. and Glinkova, O.A.. (Trudy Ural. Ind. Inst. im. S.M. Kirova, 1941, No. 7, 97.114). The light absorption of some refractory materials was studied in 3 series of experiments. In the first series the degree of blackness was determined by measuring the temperature of the heated specimen with a thermo couple imbedded in the specimen and with a radiation pyrometer. Under these conditions the degree of blackness $a = (T^4-Tb^4)/(Ts^4-Tb^4)$, where T is the temperature determined with the radiation pyrometer, T_s is the temperature determined with the thermo couple, and Tb is the temperature of the pyrometer receptacle. By this method chromemagnesite, firecley, tripoli, dinas, and magnesite brick were studied at temperatures of 700-1100°. For the 2nd series a specially constructed Pt furnace was used and the pyrometer was replaced with a differential therm pile. In accordance with the denseness of their surfaces the investigated materials were divided into 2 classes. The highest emissivity was observed in the least dense materials.

fireclay and dry pressed fireclay. Corundum, andalusite, and magnesite brick had the least emissivity. The denseness of these materials is greater than of the preceding materials. Lime, ordinary magnesite, and red brick had an emissivity between these 2 groups. For the 3rd series of experiments a furnace resembling that of Baritel was used. The temperatures investigated were 600-1400°. The materials investigated were fireclay, Dinas, chromemagnesite, and magnesite. Several samples of each were taken, differing in their screen analysis but otherwise identical. The degree of blackness of the specimens depended on their size composition, the larger the size the greater degree of blackness. The differences in the degree of blackness between sizes through screen 270 and through screen 40-50 were: for fireclay 15-20; for magnesite, 12-17; for Dinas, 10-15; and for chromemagnesite 10-20% less, depending on the temperature. The effect of size of the material on its degree of blackness was more pronounced at lower than at higher temperatures.

C.A.

***Experimental Study of Heating Liquids [Including Molten Metals] from Above.** M. A. Glinkov (*Trudy Centr. Industr. Inst.*, 1941, 17, 42–51; *Chem. Abs.*, 1946, **40**, 3655.) [In Russian]. The purpose of this investigation was to test a previously stated contention that the heating of a bubbling liquid bath heated from above can be calculated by assuming a quiescent bath having a corresponding coeff. of thermal conductivity. This coeff. of thermal conductivity is referred to as the "virtual" coeff. of conductivity. The experiments, described in detail, were carried out with water, molten lead, and a mixture of sodium nitrate 55 and potassium nitrate 45%, in pots approx. 200 [illegible]. The results confirm the existence of a relation between the bubbling of a gas through a heated liquid and the rate of heating of the liquid. In the open hearth furnace, the bubbling is provided by the rising gases which result from the combustion of carbon. Up to a certain vol., the bubbling gases accelerate the rate of heating of the liquid. Beyond this point, increases in the vol. of the gas do not accelerate the rate of heating. Thus, the time required for heating an open hearth bath cannot be changed by changing the rate of burning of the carbon in it. Deepening the hearth will raise the output of metal. There is an optimum depth (not at present calculable) which gives a max. total output.



Investigation of the relative light-absorption abilities (degree of blackness) of refractories. M. A. Glinkov and O. A. Glinkova. *Trudy Ural. Ind. Inst. im. S.M. Kirova* No. 17, 97-114(1941). The light absorption of some refractory materials was studied in 3 series of expts. In the first series the degree of blackness was detd. by measuring the temp. of the heated specimen with a thermocouple imbedded in the specimen and with a radiation pyrometer. Under these conditions the degree of blackness $\epsilon = (T^4 - T_0^4)/(T_1^4 - T_0^4)$, where T is the temp. detd. with the radiation pyrometer, T_1 is the temp detd with the thermocouple, and T_0 is the temp of the pyrometer receptacle. By this method chrome-magnesite, fireclay, tripoli, Dinas, and magnesite brick were studied at temps. of 700-1100°. For the 2nd series a specially constructed Pt furnace was used and the pyrometer was replaced with a differential thermopile. In accordance with the denseness of their surfaces the investigated materials were divided into 6 classes. The highest emissivity was observed in the least dense materials, fireclay and dry-pressed fireclay. Corundum, andalusite, and magnesite bk had the least emissivity. The denseness of these materials is greater than of the preceding materials. Dinas, ordinary magnesite, and red brick had an emissivity between these 2 groups. For the 3rd series of expts. a furnace resembling that of Bantel (cf. *Chaleur et Ind.* 1938, No. 215 and 216) was used. The temps. investigated were 600-1400°. The materials investigated were fireclay, Dinas, chrome-magnesite, and magnesite. Several samples of each were taken, differing in their screen analysis but otherwise identical. The degree of blackness of the specimens depended on their size compn., the larger the size the greater the degree of blackness. The differences in the degree of blackness between sizes through screen 270 and through screen 40 Tyl were: for fireclay

CA 19

15-20, for magnesite, 12-17, for Dinas, 10-18; and for chrome-magnesite 10-20% less, depending on the temp. The effect of size of the material on its degree of blackness was more pronounced at lower than at higher temps.

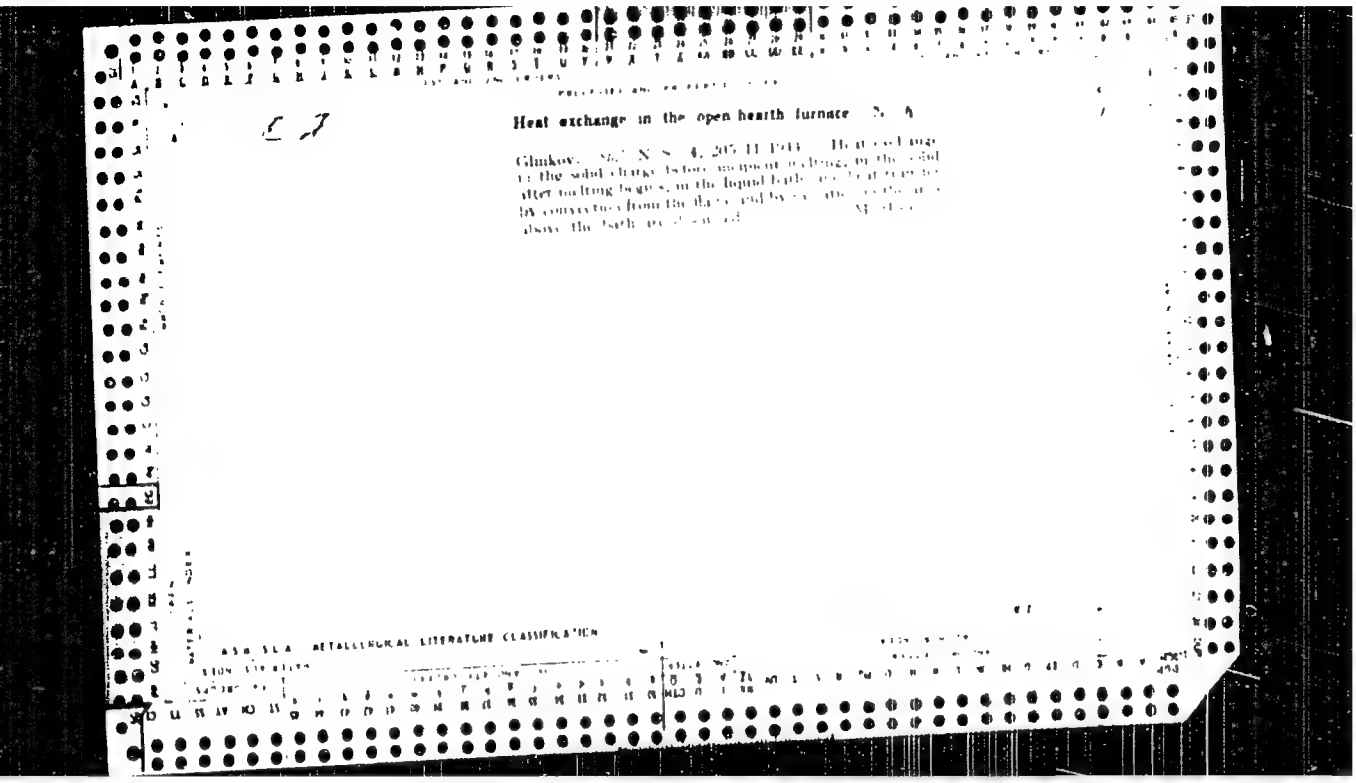
M. Hosch

C A

9

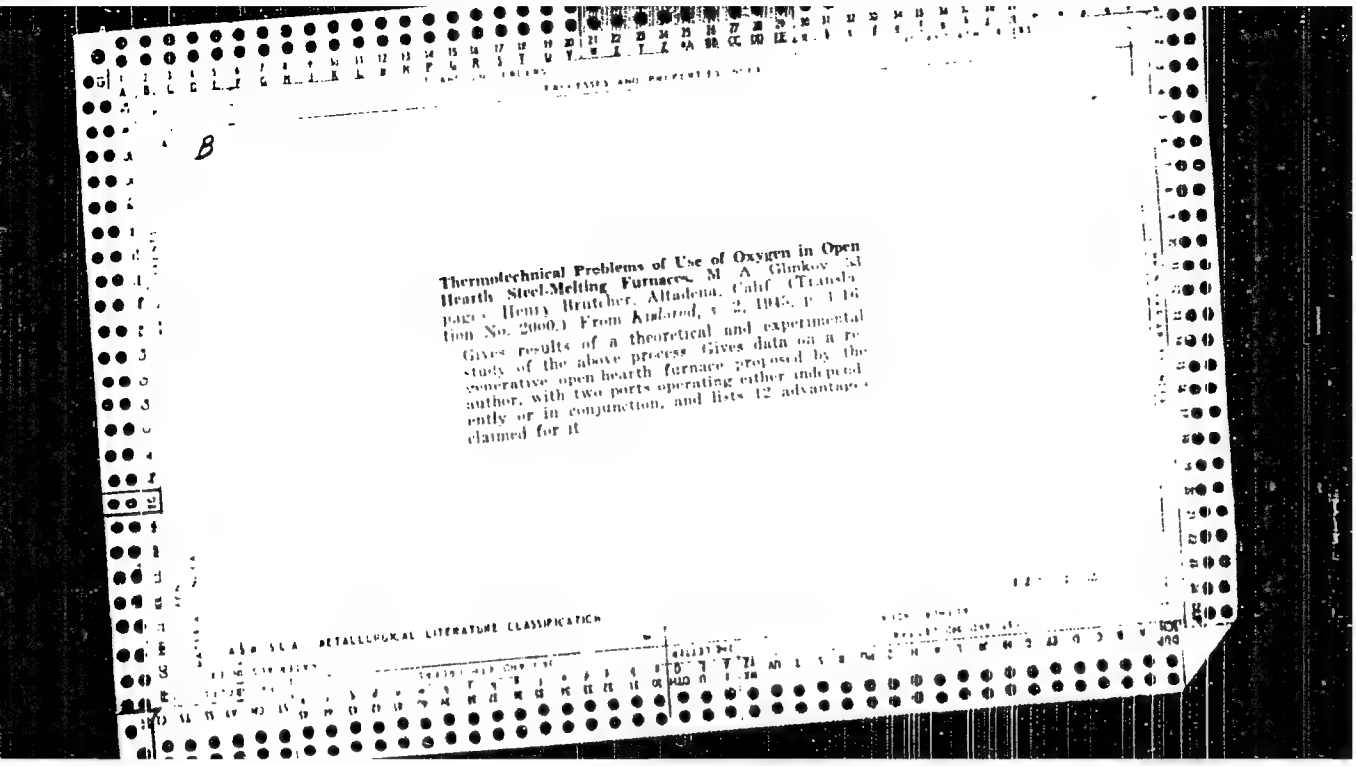
The spreading of flames in an open hearth furnace
M. A. Glinkov. [illegible] 3, No. [illegible], 21-[illegible] 194[illegible]
A [illegible] analysis of the spreading of a flame in an open hearth furnace is applied to the construction of furnaces.
M. Hoch

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Heat exchange in the open hearth furnace

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

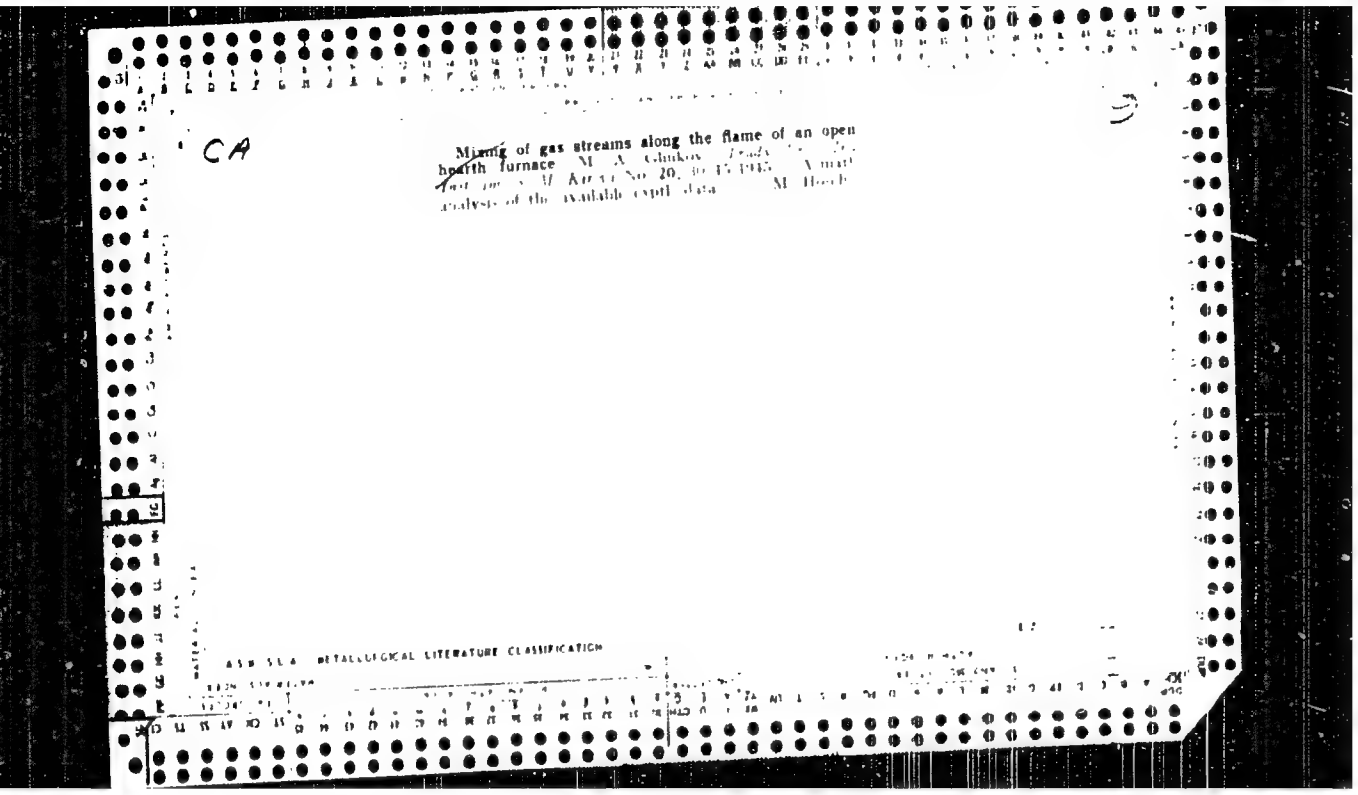


B

Thermotechnical Problems of Use of Oxygen in Open Hearth Steel-Melting Furnaces. M. A. Glinkov. [illegible] pages. Henry Brutcher, Altadena, Calif. (Translation No. 2000.) From *Avtogen*, v. 2, 1945, p. 1-16

Gives results of a theoretical and experimental study of the above process. Gives data on a regenerative open hearth furnace proposed by the author, with two ports operating either independently or in conjunction, and lists 12 advantages claimed for it.

A3a S1A METALLURGICAL LITERATURE CLASSIFICATION



Ca

Heat transfer in a liquid bath agitated by bubbling. M. A. Glinkov and V. S. Kocho. *Bull. acad. sci. U.R.S.S., Classe sci. tech.* 1946, 1463-72 (in Russian). Heat transfer between fused slags and metal in the open hearth process is detd. by the heat cond. of the melt under conditions of const. agitation by bubbling gas, mainly CO. The characteristic criterion is G = [illegible] where V = vol. of gas per sec., γ and γ_1 = specific wt. of liquid and of gas, resp., w = velocity of bubbles, ω = horizontal section of the bath, η = viscosity coeff. of the liquid, H = depth of bath from which the bubbles rise. At [illegible], the laminar flow in the bath becomes turbulent, [illegible] $Re\,Fr$ [illegible], where Re = Reynolds' no., Fr = w^2/gd (d = diam. of the bubbles), P = new criterion = V/ω. Related to G is a "virtual coeff. of heat cond.," valid under the conditions described, λ' = $C\eta\,Pr$ where C = heat capacity (by wt.) of the liquid, Pr = Prandtl's criterion, inversely proportional to G and to powers of [illegible] and of [illegible] where σ = surface tension of the liquid. Experimentally, dependence of λ' on V and on η was studied on an air-bubble-stirred water and water-glycerol mixt. bath model, with [illegible] and [illegible] kept const. Under these conditions, the dimensionless plot of log ($\lambda'/C\eta$) against log G is a single straight line with the exptl. points spreading around it. Numerical evaluation by the method of least squares gives $\lambda'/C\eta = G^{0.9}$ [illegible], that is, λ' is basically detd. by the amt. of gas passing through a unit area of the cross section of the bath and by its depth. In turbulent flow, η of the liquid has only a minor influence; thus, practically no difference was found in λ' on a 13-fold change of η (from 65% glycerol to pure water). Industrial scale expts. were conducted on 6 basic and acid open hearth slags in [illegible] batches, with η measured directly and the amt. of gas derived from the rate of combustion of carbon. The equation $\lambda'/C\eta = G^{0.9}$ is found to hold also for molten slag. λ' varies within the limits 25-92 cal. [illegible] degree. [illegible] Thon

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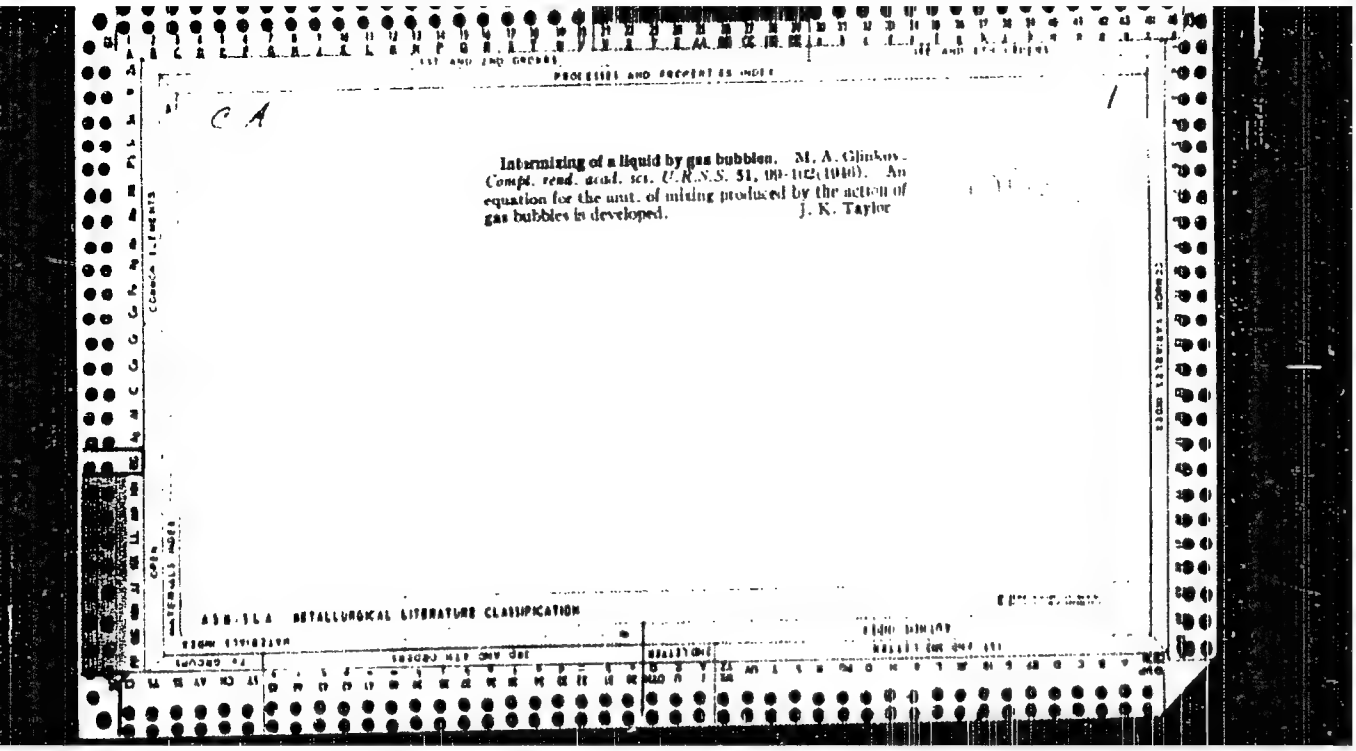
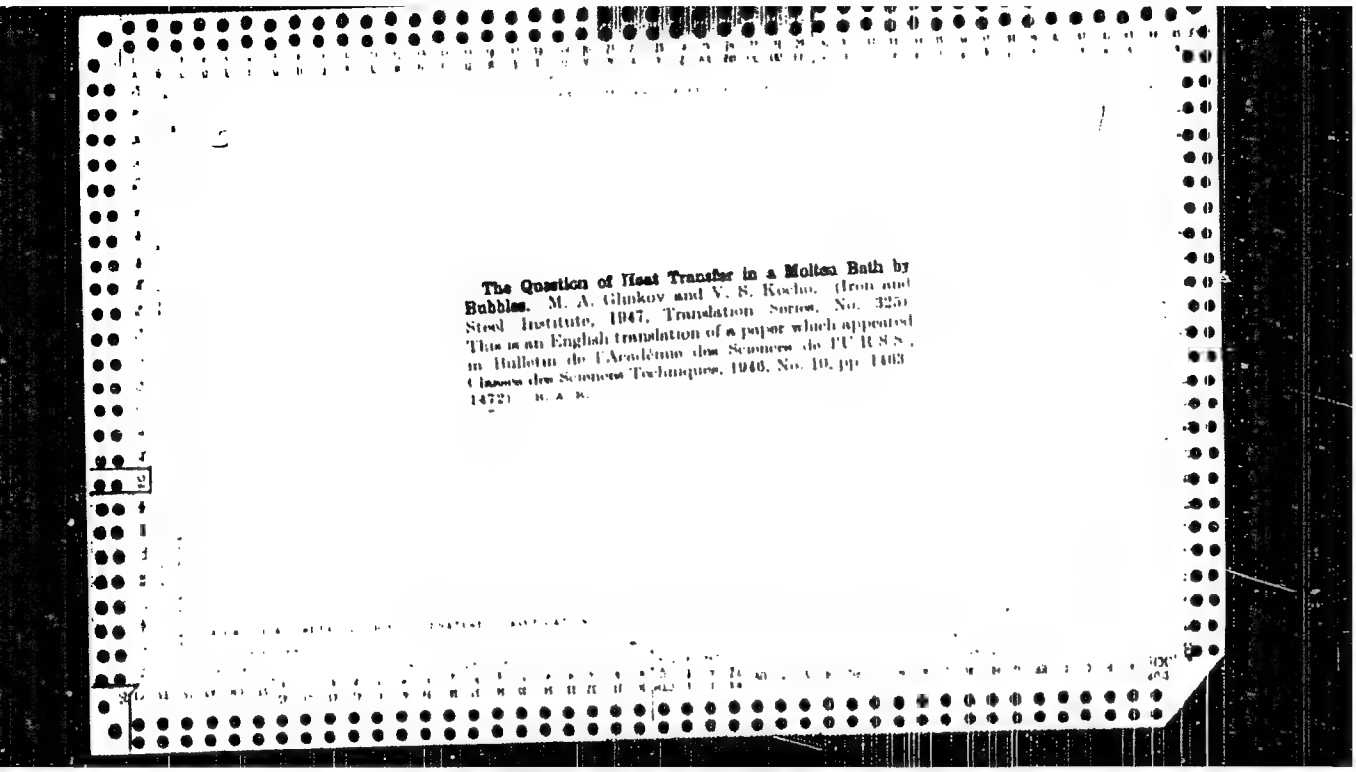
ASM-SLA METALLURGICAL LITERATURE



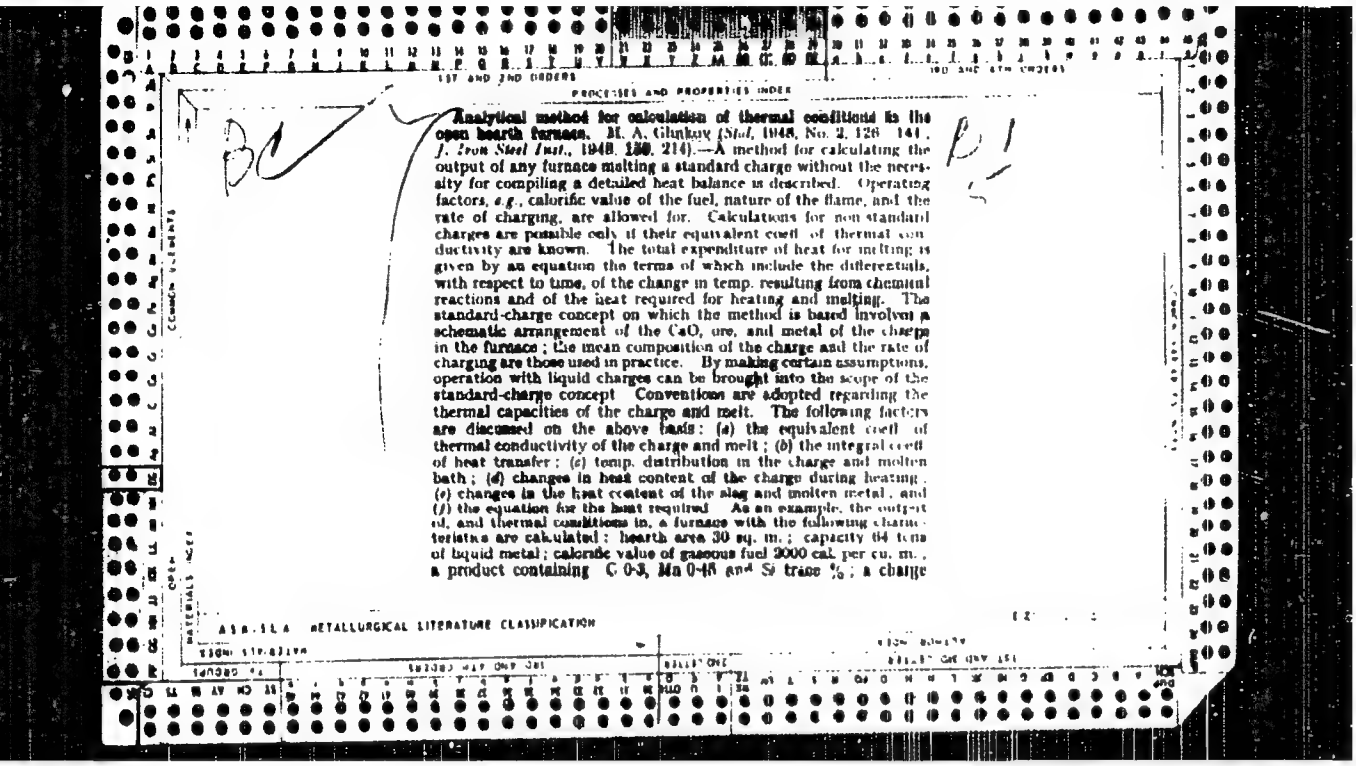
CA

Intermixing of a liquid by gas bubbles. M. A. Glinkov. *Compt. rend. acad. sci. U.R.S.S.* 51, 99-102(1946). An equation for the amt. of mixing produced by the action of gas bubbles is developed. J. K. Taylor

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION



The Question of Heat Transfer in a Molten Bath by Bubbles. M. A. Glinkov and V. S. Kocho. (Iron and Steel Institute, 1947, Translation Series, No. 325) This is an English translation of a paper which appeared in Bulletin de l'Académie des Sciences de l'U.R.S.S., Classes des Sciences Techniques, 1946, No. 10, pp. 1463-1472) [illegible]



PROCESSES AND PROPERTIES INDEX

Analytical method for calculation of thermal conditions in the open hearth furnace. M. A. Glinkov (*Stal*, 1948, No. 2, 126–141; *J. Iron Steel Inst.*, 1948, **159**, 214).—A method for calculating the output of any furnace melting a standard charge without the necessity for compiling a detailed heat balance is described. Operating factors, *e.g.*, calorific value of the fuel, nature of the flame, and the rate of charging, are allowed for. Calculations for non-standard charges are possible only if their equivalent coeff. of thermal conductivity are known. The total expenditure of heat for melting is given by an equation the terms of which include the differentials, with respect to time, of the change in temp. resulting from chemical reactions and of the heat required for heating and melting. The standard-charge concept on which the method is based involves a schematic arrangement of the CaO, ore, and metal of the charge in the furnace; the mean composition of the charge and the rate of charging are those used in practice. By making certain assumptions, operation with liquid charges can be brought into the scope of the standard-charge concept. Conventions are adopted regarding the thermal capacities of the charge and melt. The following factors are discussed on the above basis: (*a*) the equivalent coeff. of thermal conductivity of the charge and melt; (*b*) the integral coeff. of heat transfer; (*c*) temp. distribution in the charge and molten bath; (*d*) changes in heat content of the charge during heating; (*e*) changes in the heat content of the slag and molten metal; and (*f*) the equation for the heat required. As an example, the output and thermal conditions in a furnace with the following characteristics are calculated: hearth area 30 sq. m.; capacity 64 tons of liquid metal; calorific value of gaseous fuel 2000 cal. per cu. m., a product containing C 0·3, Mn 0·45 and Si trace %; a charge

A58.5LA METALLURGICAL LITERATURE CLASSIFICATION

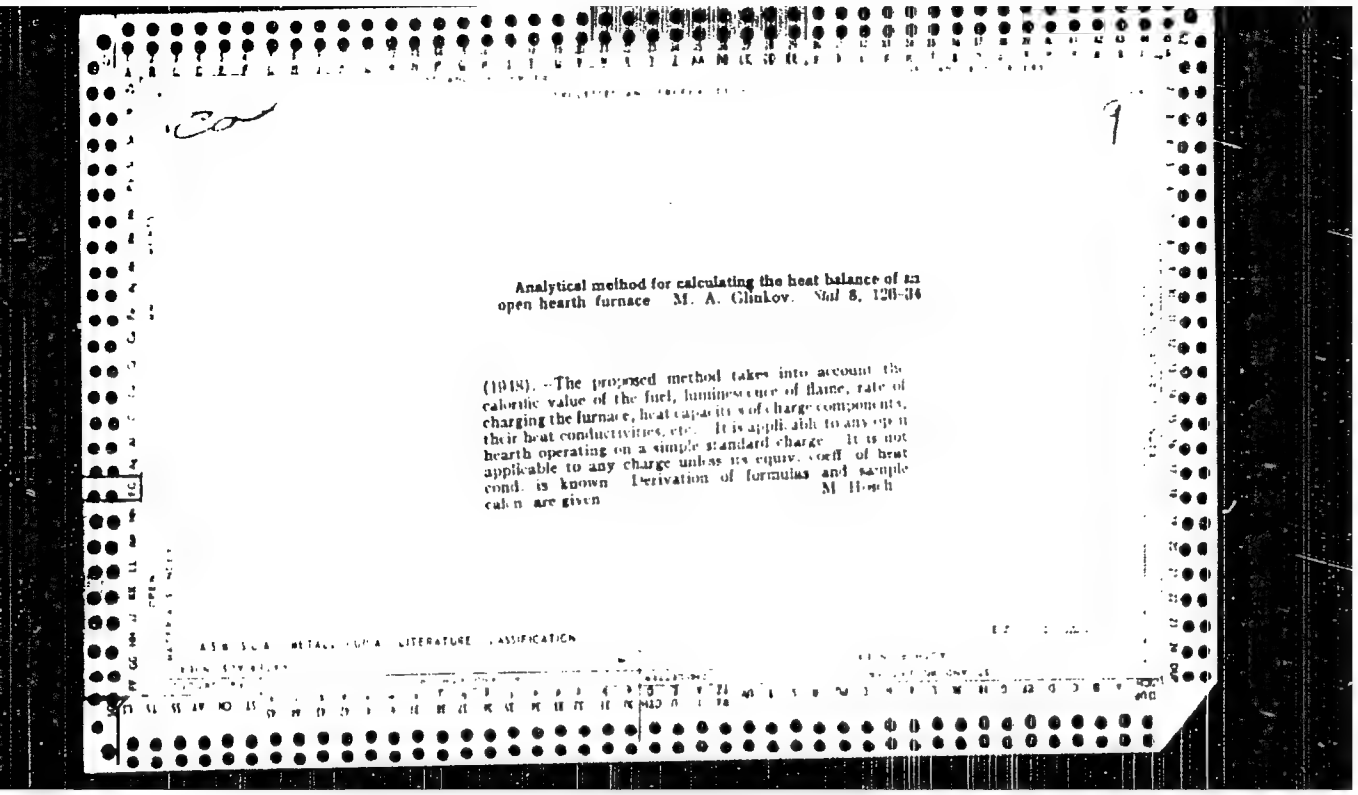
containing C 2, Mn 0·95, and Si 0·55%; expenditure of CaO and ore 8% and 8%, respectively, of the wt. of the metallic part of the charge.

H. B. CLARKE.

[illegible]

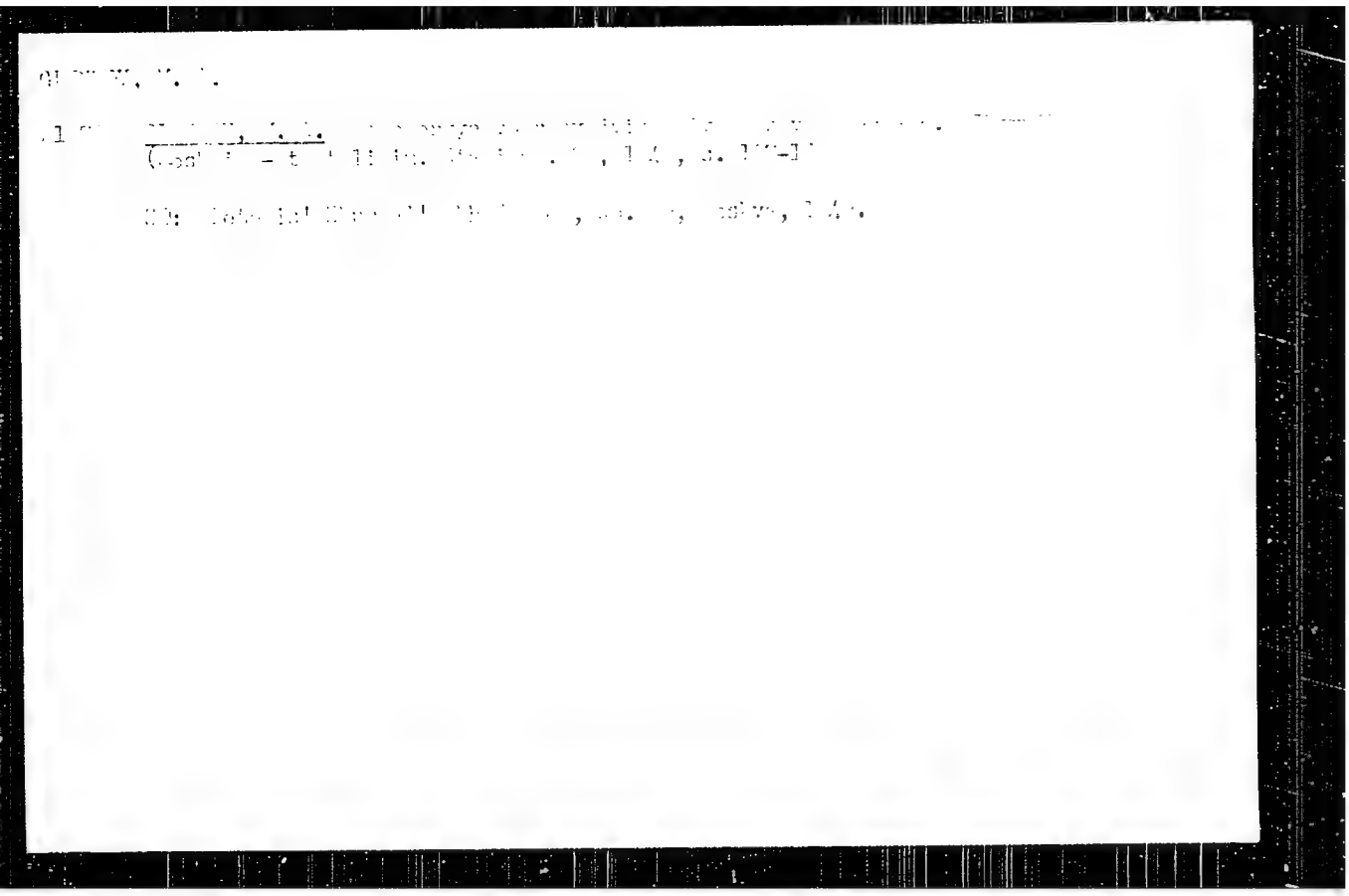
"Com[illegible] on the Art[illegible] [illegible] [illegible] by Prof. [illegible] [illegible] [illegible], [illegible], [illegible] T. [illegible]", Stal', No. 3, 19[illegible]. [illegible] Steel Inst. [illegible]

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000515410005-0"



Analytical method for calculating the heat balance of an open hearth furnace M. A. Glinkov. *Stal* 8, 126–34

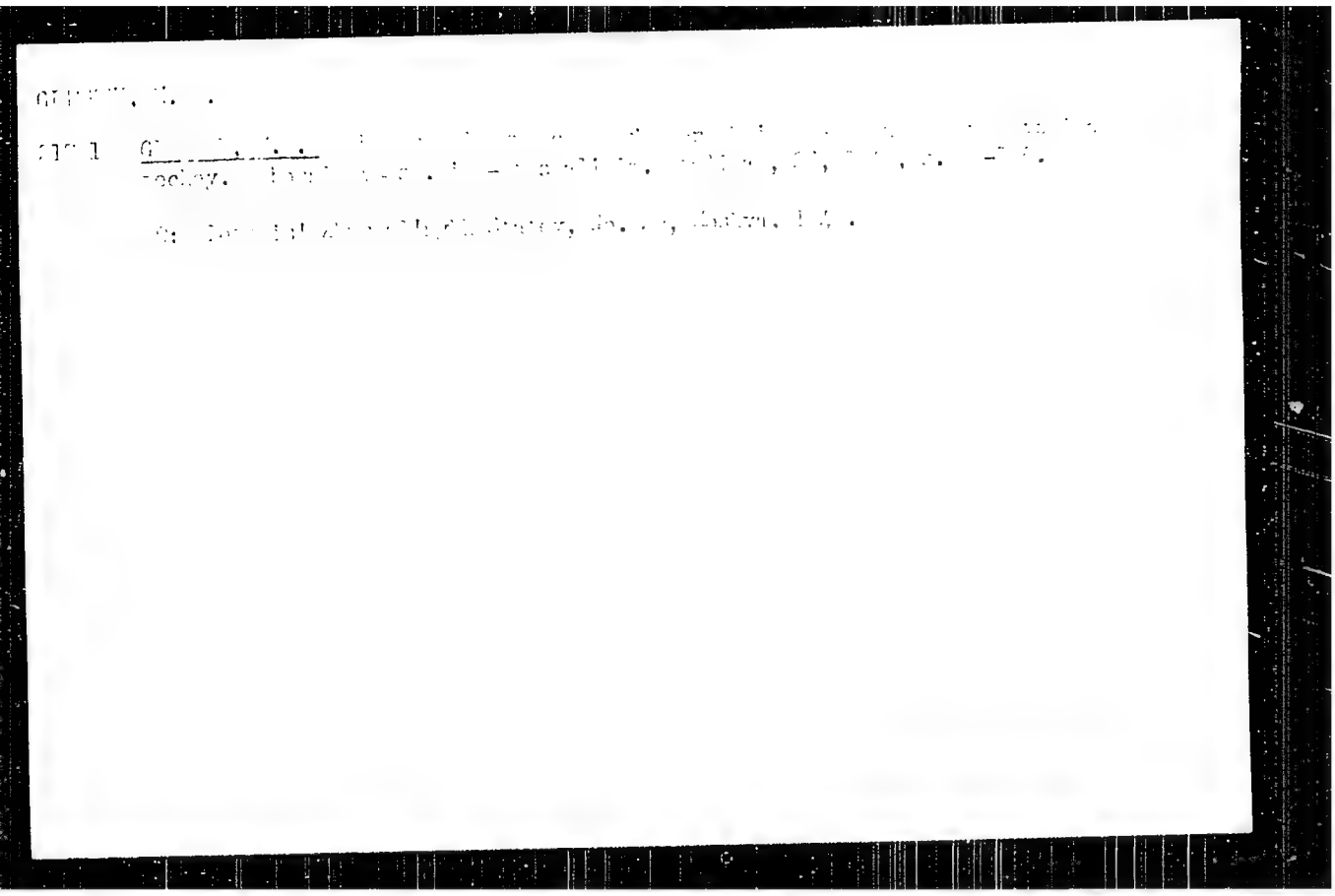
(1918). —The proposed method takes into account the calorific value of the fuel, luminescence of flame, rate of charging the furnace, heat capacity of charge components, their heat conductivities, etc. It is applicable to any open hearth operating on a simple standard charge. It is not applicable to any charge unless its equiv. coeff. of heat cond. is known. Derivation of formulas and sample calcns. are given. M. Hoch

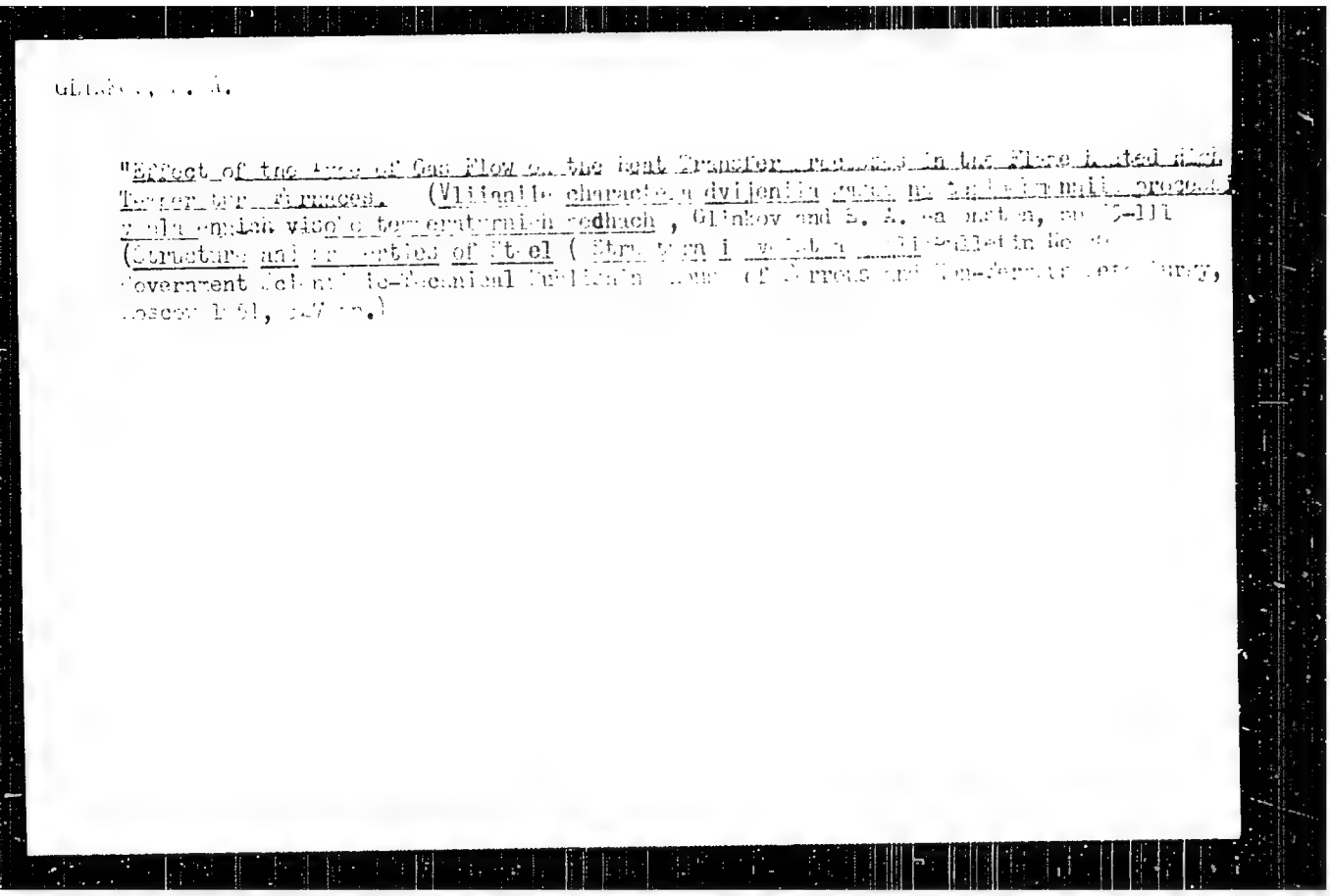


GLINKOV M. A.

Glinkov, M. A., and Glinkova, O. A. [illegible] ABILITIES (DEGREE OF BLACKNESS) OF REFRACTORIES. Trudy Gos. Inst. Ogneup. im. S. M. Kirova, No. , 97-118 (1949).--The [illegible] studies in [illegible] experiments. In the first series the degree of blackness was determined by measuring the temperature of the inside section with a thermocouple inserted in the specimen and with a radiation pyrometer. Under these conditions the degree of blackness $\varepsilon = (T^4 - T_0^4) / (T_p^4 - T_0^4)$, where T is the temperature determined with the radiation pyrometer, T_p is the temperature determined with the thermocouple, and T_0 is the temperature of the pyrometer receptacle. By this method chrome-magnesite, fire clay, talc, Dinas, and magnesite brick were studied at temperatures of 700° to 1100°. For the second series a specially constructed Pt-Pt/Rh couple was used in the pyrometer and replaced with a differential thermocouple. In accordance with the denseness of their surfaces the investigated materials were divided into 6 classes. The greatest emissivity was observed in the least dense materials, firaclay and dry-pressed fire clay. Corundum, sillimanite, and magnesite had the least emissivity. The denseness of these materials is greater than that of the preceding materials. Dinas, ordinary magnesite, and talc brick had an emissivity between these 2 groups. For the 3rd series of experiments a furnace pyrometric cone of Seger (of Chaleur et ind., 1938, Nos. 325 and 326) was used. The temperatures investigated were 1[illegible] to 1400°. The materials investigated were fire clay, Dinas, chrome-magnesite, and magnesite. Several samples of each were taken, difference in the blackness of the specimens depending on their size composition, the larger the size the greater the degree of blackness. The differences in the degree of blackness between sizes (on mesh screen 900 and between screens 4 to 5) were: for fire clay 5 to 7%; for magnesite, 12 to 17; for Dinas, 14 to 18; and for chrome-magnesite 3 to 6% less, depending on the temperature. The effect of size of the material on the degree of blackness was

(over)





Glinkov, . . A.

"Effect of the type of Gas Flow on the Heat Transfer process in the Flame in Steel Heating Furnaces. (Vliyaniye kharakter dvizheniya gaza na teplovoy protsess v plamennykh vidakh termicheskikh pechey , Glinkov and S. A. [illegible], [illegible]-111 (Structure and properties of Steel (Stroyeniye i svoystva stali)" Collection of articles published by the Government Scientific-Technical Publishing House of Ferrous and Non-ferrous Metallurgy, Moscow 1951, [illegible].)

GLINKOV, M. A.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 601 - I

BOOK Call No.: AF428232

Authors: GLINKOV, M. A., Dr. of Tech. Sci., Prof., et. al.

Full Title: METALLURGICAL FURNACES

Transliterated Title: Metallurgicheskiye pechi

PUBLISHING DATA

Originating Agency: None

Publishing House: State Scientific and Technical Publishing House of Literature on Ferrous and Nonferrous Metallurgy (METALLURGIZDAT)

Date: 1951 No. pp.: 975 No. of copies: 8,000

Editorial Staff: The Authors' Collective (Avtorskiy Kollektiv) with Glinkov, M. A., Dr. of Tech. Sci., Prof. as Editor-in-Chief. Collaborating members are: Baum, V. A., Budrin, D. V., Vashchenko, A. I., Glinkov, M. A., Granovskiy, B. L., Kitayev, B. I., Kuz'min, M. A., Mikhaylenko, A. Ya., Nazarov, I. S., Plotnikov, L. A., Semikin, I. D., Tayts, N. Yu. and Troyb, S. G.

PURPOSE: To replace the several books used in the course at the metallurgical colleges (with one) comprehensive manual. Approved as a textbook by the Ministry of Higher Education of the USSR.

TEXT DATA

Coverage: Fuels and process of combustion are thoroughly analyzed. General principles for construction of metallurgical furnaces, various refractory and other construction materials are discussed.

1/2

Metallurgicheskiye pechi AID 601 - I

The basic principles of heat engineering, mechanics of gases, theory of analogies, transmission of heat, tempering, smelting and cooling of metals are treated in detail with elaborate mathematical formulae. The auxiliary equipment of the combustion chamber is minutely described and illustrated. Blast and open-hearth furnaces and the heat-treatment furnaces used in ferrous metallurgy, the shaft furnaces, reverberatory, tubular rotary and crucible furnaces used in nonferrous metallurgy, as well as electric resistance, induction and electric arc furnaces are described. (Electric furnaces in ferrous metallurgy and their control and automatic equipment are not given but will be discussed in a book to be published later). The book is abundantly illustrated with diagrams, mathematical formulae and charts. This book is compiled by collaboration. The 13 authors presented a chapter or division. Their manuscripts underwent a mutual evaluation, correction and critical discussion by the other members of the collective, and then were incorporated into the book.

No. of References: 175 Russian, 1925-1950

Facilities: Moskva Institute of Steel; Ural Polytechnic Institute; Dnepropetrovsk Metallurgical Institute; Moskva Institute of Nonferrous Metals and Gold; Leningrad Polytechnic Institute; Siberian Metallurgical Institute; and State Scientific Research Institute of Nonferrous Metals.

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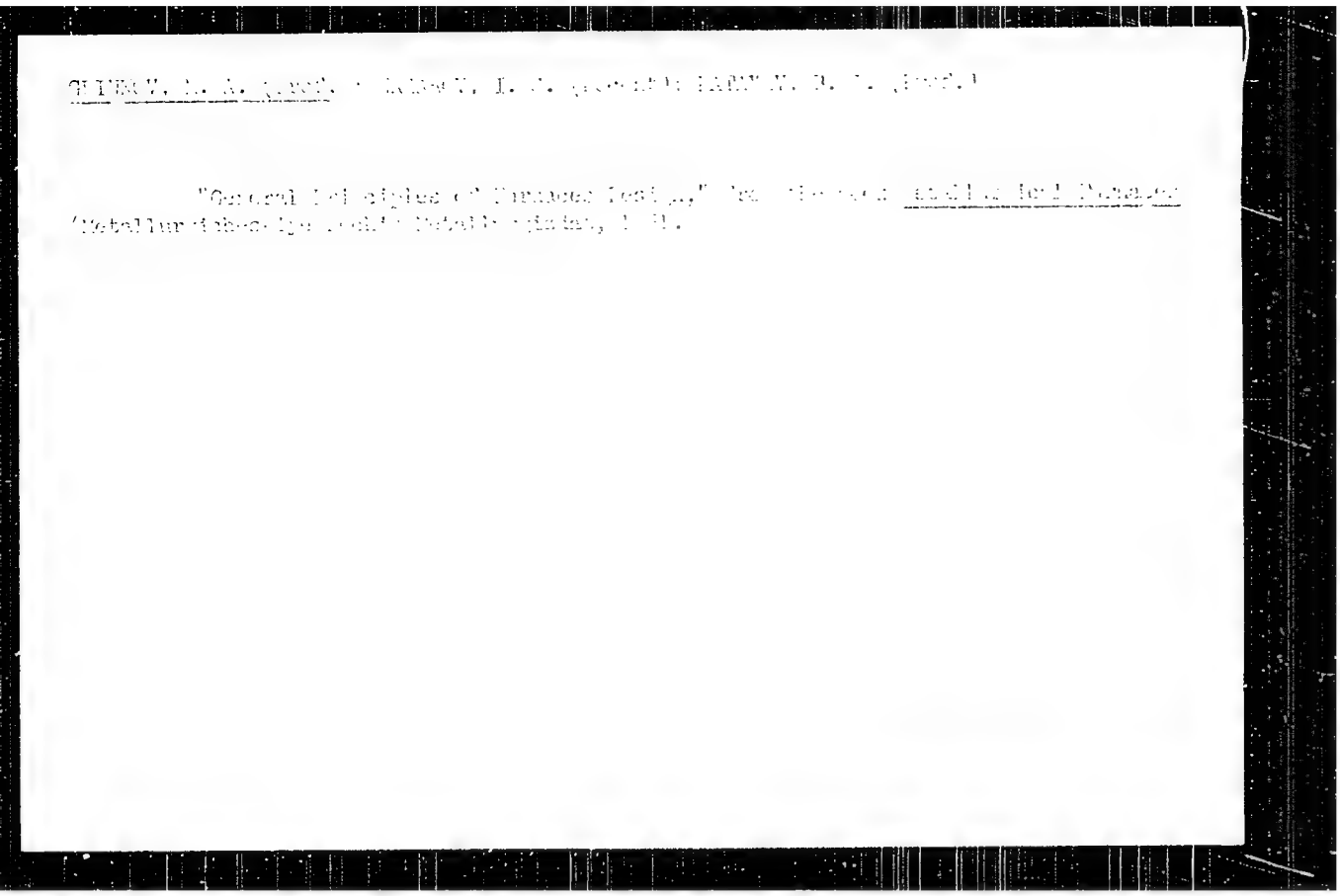

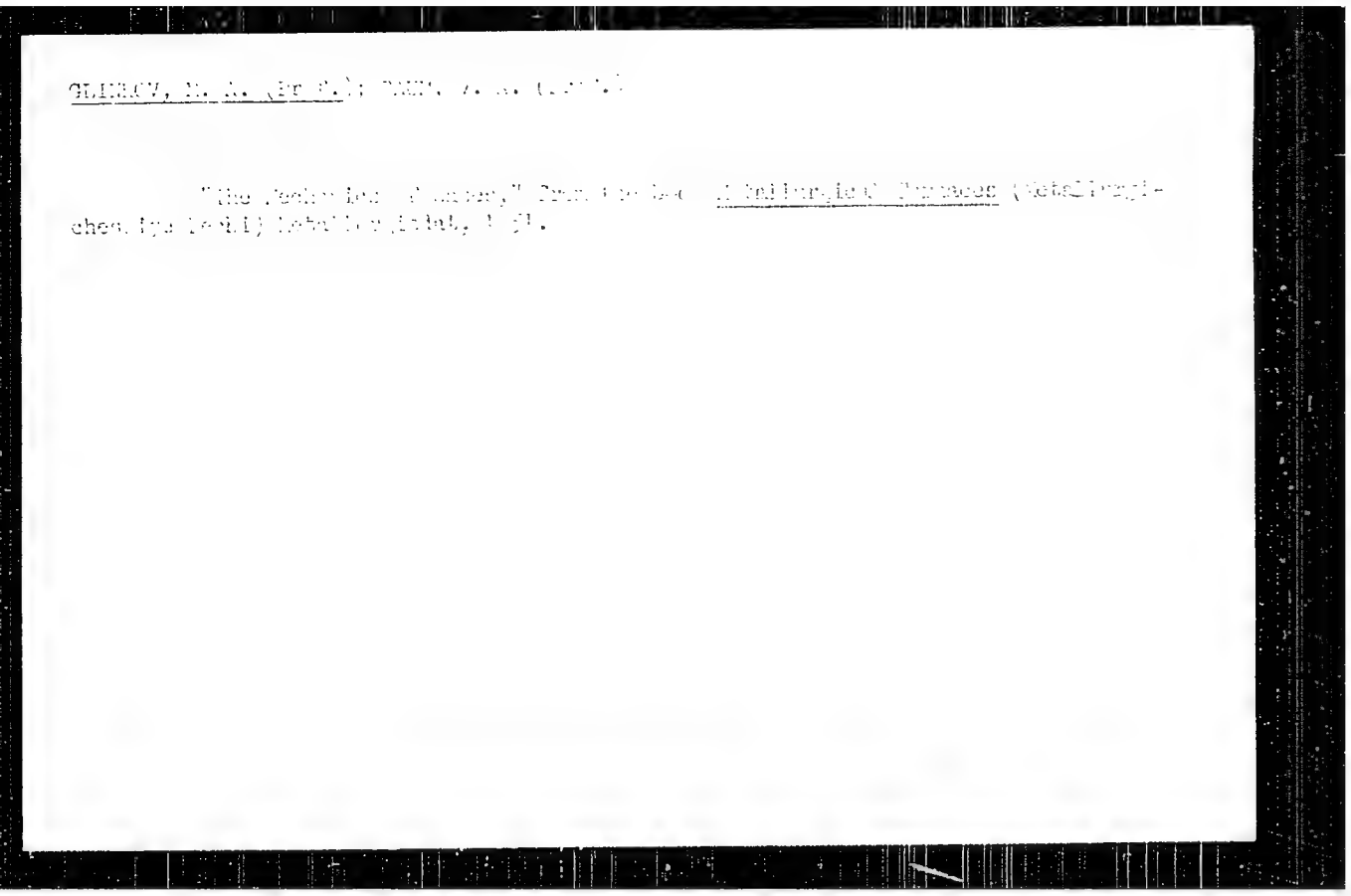

GLINKOV M.A

3

USSR

Influence of the pattern of gas travel on heat-exchange processes in high-temperature flame furnaces. M. A. Glinkov and B. G. Kapustin. *Sverdlov. Inst. Nauch. Issled. Proektn. Zavodov Tsvetn. Met., Sverdlovsk, Sbornik Trudov i Soobshch. Nauch. Sborma* 30, 85–111 (1951).—An extensive study of the heating mechanism in a 10-ton exptl. open-hearth furnace fired with a natural gas burner, the inclination of which to the bath was changed from 10 to 40°. A greater inclination of the flame widens the flame and spreads it in the direction perpendicular to the axis of the burner until it strikes the surface of the bath. After this the section of the flame becomes U-shaped and has a greater thermal efficiency. Temp. distribution obtained with different positions of the burner is given in diagrams. 18 references. J. L. Cat.

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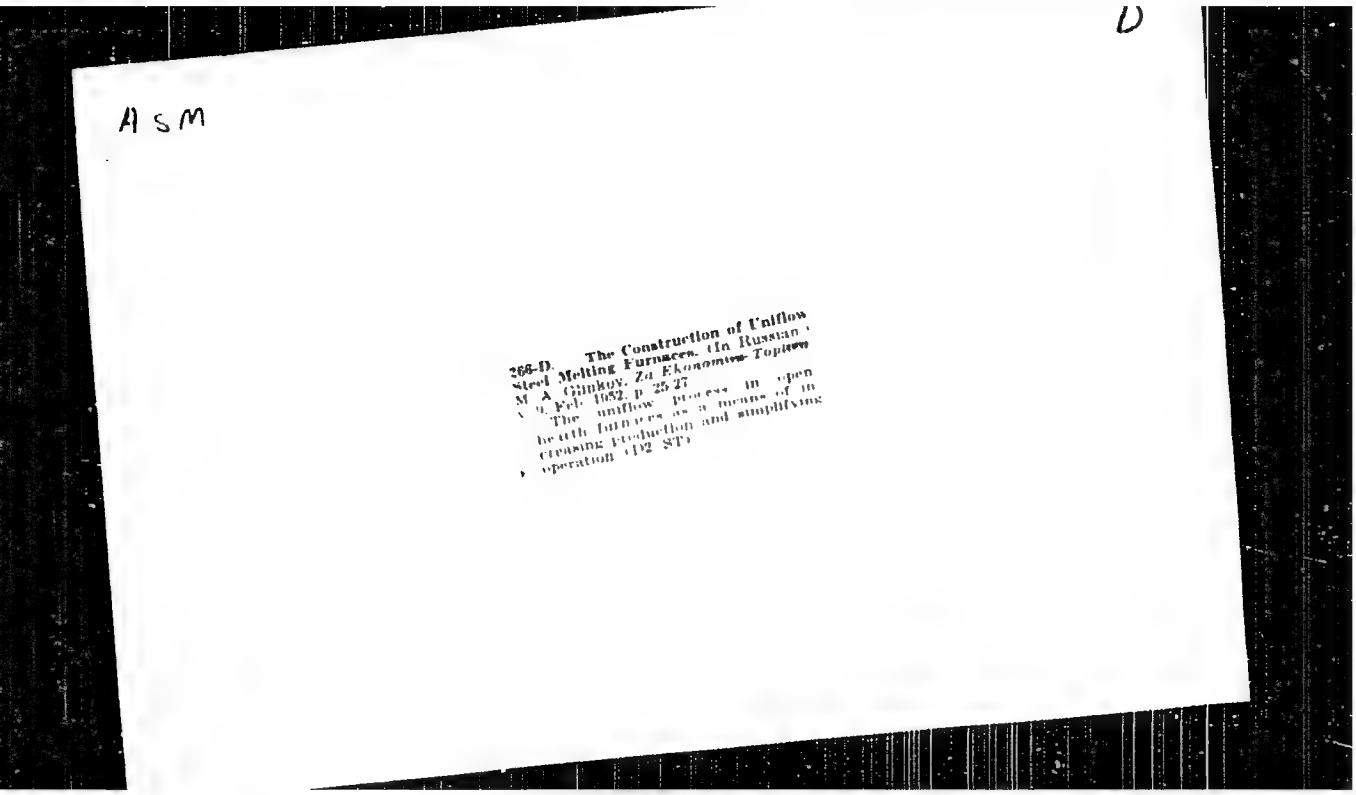


D

A S M

266-D. The Construction of Unflow Steel Melting Furnaces. (In Russian.) M. A. Glinkov. Za Ekonomiyu Topliva v. 9, Feb. 1952, p. 25-27

The unflow process in open hearth furnaces as a means of increasing production and simplifying operation (12 ST)

GLINKOV, M.A.

14E2c

Problems of Metallurgy. Academy of Sciences of the U.S.S.R., Moscow, 1953. Electrochemical Investigations in the Field of Pyrometallurgy. O. A. Esin. (9[illegible]-12[illegible]) [In Russian]. Work on a number of high-temperature galvanic cells with fused slags as the electrolyte is described. These have been studied electrochemically and [illegible] cells with an iron electrode. Electrocapillary effects have also been studied. The kinetics of metal/slag reactions are discussed. Influence of Deoxidising Elements on the Activity of Oxygen Dissolved in Liquid Iron. A. M. Samarin. (76-98). Equilibria between oxygen in liquid iron and silicon, vanadium and other deoxidising elements are considered, and the influence of these elements [illegible]

GLINKOV, M.A., professor, doktor; REKHTMAN, M.Ya., kandidat tekhnicheskikh nauk.

Movement of gases in the hearth of open-hearth furnaces. Sbor.Inst.stali no.31:285-317 '53. (MIRA 9:9)

1.Kafedra "Metallurgicheskiye pechi".
(Open-hearth furnaces) (Gas flow)

USSR

A "fire-stand" investigation of heat exchange inside the furnace. M. A. Glinkov and A. G. Zen'kovskii. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1954, No. 11, 108-23.—The term "fire-stand" was coined to represent an app. for measuring heat exchange; the metal to be heated is replaced by a heat-absorbing and measuring device, which, on the heat-absorption side is provided with additional heat resistance in the form of thin plates of fire-proof material with a degree of blackness equal to the blackness of the replaced metal. The proposed method permits the study of heat processes inside a large furnace on a small geometrical model. W. M. Steinhall

GLINKOV, M. A.

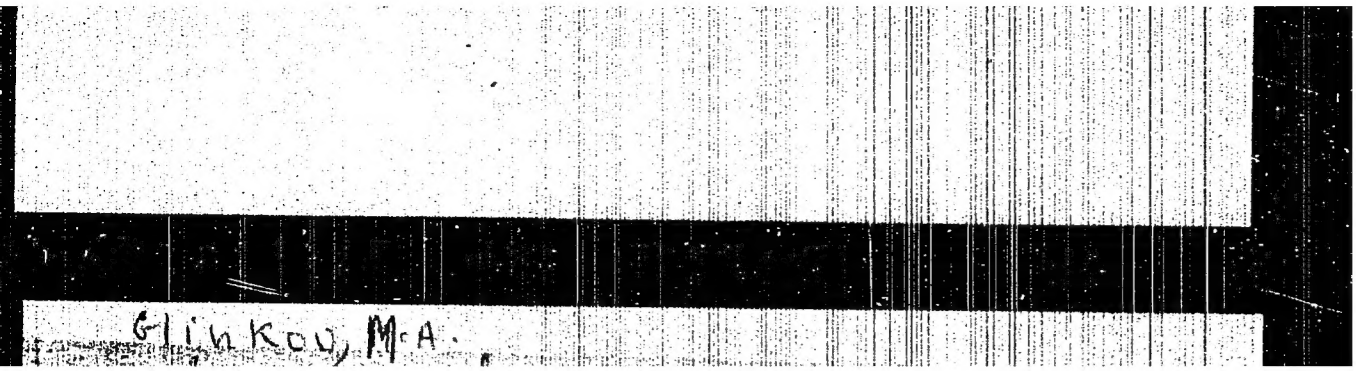
1340* Heat Exchange in Continuous Furnaces. O teploobmene v metodicheskikh pechakh. (Russian.) M. A. Glinkov and A. G. Zen'kovskii. *Izvestiia akademii nauk [illegible] tekhnicheskikh nauk*, 1955, no. 10, Oct., p. 138-142.

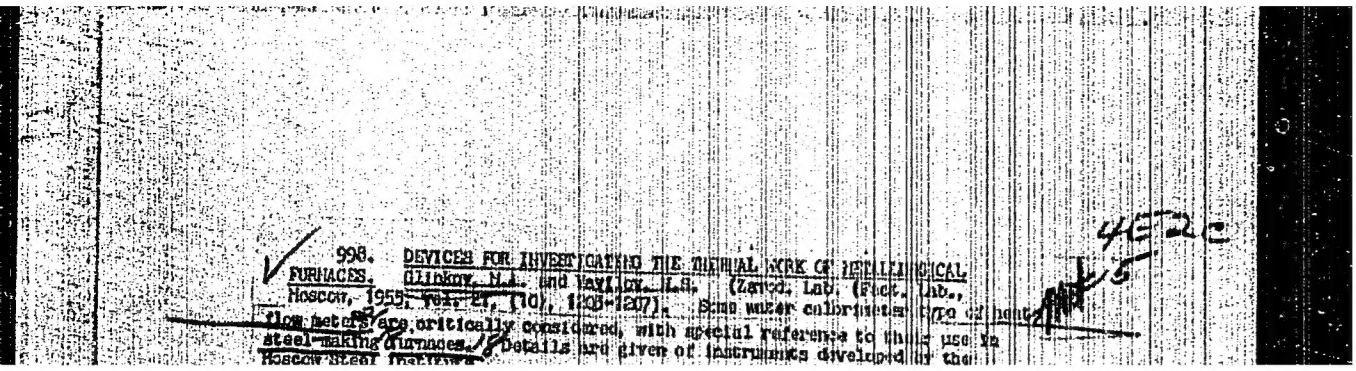
Effect of screen on heat-exchange intensity; efficiency of direct-flow continuous two-zone furnaces; comparison of variations of counter- and direct-flow arrangements; calculations of radiant heat exchange. Diagrams, graphs. 2 ref.

GLINKOV, M.A.; VAVILOV, N.S.

Instruments for investigating the thermal operation of metallurgical furnaces. Zav.lab.21 no.10:1203-1207 '55. (MLRA 9:1)

1.Moskovskiy institut stali imeni Stalina.
(Thermometers) (Metallurgical furnaces)





998. DEVICES FOR INVESTIGATING THE THERMAL WORK OF REGENERATIVE
FURNACES. Glinkov, N.I. and Vaxilov, L.S. (Zavod. Lab. [Fact. Lab.,
Moscow, 1955, Vol. 21, [10], 1205-1207). Some water calorimetric type of heat-
flow meters are critically considered, with special reference to their use in
steel-making furnaces. Details are given of instruments developed in the
Moscow Steel Institute.